City of Cambridge.

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THE

MAYOR'S ADDRESS

AT THE

ORGANIZATION OF THE CITY GOVERNMENT,

AND THE

ANNUAL REPORTS

MADE TO

THE CITY COUNCIL.

CAMBRIDGE:
PRESS OF JOHN WILSON AND SON.
1871.

CITY OF CAMBRIDGE.

In Common Council, January 18, 1871.

Ordered, That twelve hundred copies of the Mayor's Inaugural Address, together with the Annual Report of the Committee on Finance, made to the last City Council, with the accompanying documents, and such other documents as have been ordered to be printed by the City Council, be printed, under the direction of the City Clerk, for general distribution.

Adopted and sent up for concurrence.

Attest: J. W. COTTON, *Clerk.*

In Board of Aldermen, January 25, 1871.

Concurred.

Attest: JUSTIN A. JACOBS, *City Clerk.*

January 26, 1871.

Approved.

H. R. HARDING, *Mayor.*

ADDRESS

OF

HON. HAMLIN R. HARDING,

MAYOR.

Gentlemen of the City Council: —

The first and highest duty of the day has already been performed. By the voice of the Reverend gentleman who has, in our behalf, supplicated the Divine favor, — following his thoughts as he has uttered them, — we have humbly recognized our entire dependence upon that Great Being, who by His omnipotent power has created the Universe, and who in His infinite goodness has protected and preserved all that the Universe contains. We have taken, also, the oaths and obligations of office, — pledging ourselves, thereby, to faithful service; to assiduous application; to an honest discharge of all the responsibilities that we are about to assume. Laying aside, at the threshold, all prejudice, all animosities, all partisan feeling, — if any of these we have, — and looking only to what is best for the great and important interests wherewith we are intrusted, we approach the work that lies before us.

Previously to proceeding to address you upon some of the topics which will claim your notice in the course of the year, I desire to return to the people of Cam-

bridge my sincerest thanks for the honors which they have from time to time bestowed upon me. From the beginning of 1859 to the close of 1871, a period of thirteen years, I shall, for nine of those years, have served the city in a public office. For all the honorable positions which I have thus been invited to fill, I have always felt, and still do feel, deeply grateful. And now, entering upon a new term of service, which will doubtless be my last in any public capacity, I feel impelled to say, that, while these testimonials of confidence may have exceeded my deserts, they have been very highly appreciated, and will ever be pleasurably remembered. On retiring at the close of the year which is now just opening, I hope for the satisfaction of taking with me the esteem of all whose esteem it is desirable to have; and, at all events, of preserving the consciousness, which I now possess, of having earnestly endeavored to meet all the requirements of the different stations in which my fellow-citizens have given me the opportunity to serve them.

FINANCE.

I now ask your attention, for a few moments, to the financial condition of our city: —

It appears, by the Report of the Committee on Finance, that there was on hand, Dec. 1, 1869	$63,338.06
Received, from all sources, to Dec. 1, 1870 . .	1,523,652.34
Making the total receipts for the year	$1,586,900.40
Total expenditures for the year	1,503,132.83
Cash balance, Dec. 1, 1870, of	$83,857.57

The amount of funded debt, Dec. 1, 1870, was .		$1,582,400.00
The increase in 1870 being $60,000, for Water Loan, and $222,000, for general city purposes.		
There fell due, in December, the State and County Tax of		$88,672.40
And bills payable, and interest accrued, but not due		7,845.52
Making immediate liabilities amounting to . .		$96,517.92
To meet which, the city has cash assets amounting to		293,116.75
Leaving a balance in favor of the city, of . . .		$196,598.83
Our actual condition is, therefore, *funded debt* .		$1,582,400.00
Of this amount, the Water Loan represents the sum of	$888,400.00	
And there is a balance of cash assets of	196,598.83	
Which, aggregated, is		1,084,998.83
Leaving real debt created for general city purposes		$497,401.17
The real debt, created for general city purposes, was, on Dec. 1, 1869		412,000.00
Net increase in 1870		$85,401.17

The Water Loan is not to be considered strictly as debt, for the same reason that I stated here a year ago; namely, that the Works themselves represent a productive, self-sustaining, and ultimately self-paying property, to the amount of every dollar of cost. They never have been, and never will be, the slightest burden upon the tax-payers. On the contrary, the time will come when they may be made to very largely assist in relieving taxation.

It will be perceived that the debt for general purposes was increased last year to the amount of $222,000. Of this amount, about $165,000 was for the most part used for

improvements on Streets; $50,000 was for Sewers; and $7,000 was the amount of the mortgage on the wharf property, purchased by the city, and situated near the junction of Main and Harvard Streets. Bonds to the amount of $20,000, payable in twenty years, were issued; but the remainder of the debt incurred was made payable in one and two years: so that in October next there will be due the sum of $102,000, and in the month of October, 1872, there will be due the further sum of $100,000. In addition to this, there will be due, this year, the sum of $11,000, being the amount of two notes given to the Lowell Institution for Savings, Nov. 6, 1850, and Jan. 23, 1851. This makes, in all, $113,000 of debt falling due the present year, and $100,000 next year. Subsequently to 1872 no part of the debt will become due until 1877, and then the amount will not be large. It ought to be remembered here, that, although so large an amount will be due and payable in the course of the next nine or ten months, there will, on the other hand, be an income from assessments for drains, sidewalks, and betterments, nearly or quite equal to the sum to be paid out. Thus the burden will not be heavy, although the aggregate sum may be a considerable one.

The expenditures in 1870 were larger than in any former year; but it is a fact which cannot be successfully disputed, that nothing was done for mere extravagant display. Every dollar laid out purchased a dollar's worth; and the city has not suffered, but has rather benefited, by the course pursued. During the year just commencing, three courses, as it seems to me, lie open before you.

One is, to stop entirely all expenditures not immediately necessary, and reduce every thing to the lowest possible point; another is, to continue and even enlarge upon the policy of last year, but putting the burden directly and at once upon the present body of tax-payers, thus increasing the taxes to $16 or $18 per thousand; the third is, to continue the policy of 1870, but to distribute the burden of taxation over the six years during which we shall have no part of the city debt to pay. This last is the method that I desire to recommend. During the next five years a very large amount of money ought to be laid out in improving the city. We can put half a million of dollars into improvements which will be worth all they cost; which will remain as solid property for scores of years; and which will, immediately and for all future time, operate as controlling inducements for the coming among us of a desirable and valuable population. The rate of taxation last year was $14 per thousand, with four per cent. discount if paid on or before Oct. 10th, leaving the net rate $13.44 per thousand. I have doubts whether the rate can be held at these figures this year, but on no account should they be allowed to rise above $15 per thousand. Rather than that they should be permitted to exceed that sum I would recommend the adoption of the first alternative that I mentioned a moment ago; namely, to cease all expenditures not absolutely necessary, and make no improvements whatever. I am satisfied that a rate exceeding $15 would prove exceedingly detrimental to our interests, because of the strong and almost irresistible tendency thereof to drive away personal property and greatly depress real estate.

As I have before remarked, we can, by distributing the cost of improvements over a series of years, accomplish all that we need to do, and this without serious inconvenience. I pass from this subject to that of

SCHOOLS.

The New England System of Public Schools has for many years deservedly furnished a fruitful theme for the eulogistic phrases of orators and writers. To take every child of whatever class, condition, or color, and to instil into his yielding mind correct principles, sound morality, and the rudiments of useful knowledge, is indeed a grand and noble thing. The Puritan Fathers, by their magnificent system of public and impartial instruction, provided an all-sufficient remedy for any errors — religious, political, or social — which they may have entertained. Error cannot long survive in the midst of an intelligent and even partially educated community. This system of our Fathers needs no defenders. Fifty years ago Daniel Webster, standing upon Plymouth Rock, justified it as "a wise and liberal system of police, by which property and life and the peace of society are secured." Upon this impregnable basis it will stand for ever. So long as this groundwork is adhered to and maintained, so long will the whole structure remain intact; but if, in an excess of zeal, the time should ever come when this system should be so magnified and overgrown as to exceed all the anticipations of its founders, then, and not till then, will there be danger of its fall. The subject of the somewhat alarming increase of the expenses of

maintaining the Public Schools is attracting attention in different parts of the country. I know of no one who will complain of any reasonable or even liberal taxation for this purpose; but I do fear that there is a disposition in some quarters to pile study upon study, and accomplishment upon accomplishment, as requirements in the public schools. The total appropriation last year in this city for instruction, care and repair of school-houses, new buildings, &c., was very nearly $180,000.* This was something more than *one-third* of the whole taxation for municipal purposes. This year the amount to be expended cannot be less than $200,000. These things should "give us pause," and lead us to inquire whether or not there may be something saved in this direction. It is quite possible that under the present laws of the Commonwealth it will be found that not only nothing can be saved, but that even a greater amount will be needed. The branches of learning which cities and towns are compelled by law to provide for are growing more and more numerous. The most recent act of the Legislature requires that not merely the pupils in the public schools shall be taught drawing, but that "free instruction shall be given in industrial or mechanical drawing" to all persons who may desire to learn. This may be all right and proper; but, if this process of demanding free instruction in almost every thing is continued, the expenses of our school system will be enormously increased. This increase will not be complained of by any if the

* The actual expenditure was $158,452.36, but there were contracts for work not completed at the close of the financial year, to the amount of more than $20,000. This brings the total up to the sum stated above.

expense is a necessary one, or if the knowledge to be gained is the kind of knowledge that the Government has a right, under the rule laid down by Mr. Webster, to tax the citizens for. Two things are certain: one of which is, that New England men will not shrink from a thorough discussion of this whole matter; and the other is, that in case of doubt in regard to it they will incline, as they ought, to the side of liberality rather than to that of parsimony. If I seem to criticise in any degree the present state of things, I by no means would be understood as falling back, by a single hair's breadth, from the principle firmly established here, and never, I trust, to be shaken,— that the system of public instruction at the public expense is to be maintained at all times, at all hazards, and against all comers. But while this is so, and will ever remain so, we *have* a right to inquire whether we have not departed too far from the true and just simplicity of former times, and whether we are not attempting to tax the people for instruction in branches which have, at the best, but a very remote tendency to "secure life, or property, or the peace of society."

Two new school-houses have been commenced since a year ago, and one of them has just been completed and occupied. This is the "Holmes Primary," on Hilliard Street, Ward One. The total cost of this building, which is of wood, and furniture, together with the land, was about $12,500. This house will accommodate about 224 pupils. The other structure, now in process of erection, is of brick, and will contain seats for some 400 scholars. It is situated on Niagara Street, Ward Four. The cost of this, with the

furniture and land, will be in the vicinity of $35,000. It is to be called the "Willard Primary." A considerable sum of money was also expended last year in the alteration of two of the school-houses in Ward Three. A lot of land at the corner of Broadway and Inman Street was purchased last spring at a cost of $8,000, and a contract has been made for the erection thereon of a brick building to be used by what is now known as the Harvard Grammar School. Twelve rooms, each accommodating 56 scholars, will be contained in this house; and a large hall in the upper story can ultimately be put to the same use, when no less than 900 pupils will be provided for. The total cost of this structure, with the land, furniture, &c., will be not far from $70,000. This is less by $30,000 or $35,000 than buildings accommodating a similar number of scholars have cost in other cities.

Cambridge has the benefit of the services of an exceedingly able, discreet, and learned body of men acting as the School Committee; and our schools will bear a comparison with any others in the Commonwealth. The teachers are faithful, competent, and worthy of the respect and support of all good citizens. The establishment of the office of Superintendent of Schools has proved a success, and we are fortunate in retaining the present incumbent in that position.

STREETS AND SIDEWALKS.

Within twelve months an immense amount of work and material have been expended upon our streets and sidewalks. Our citizens are under deep obligations to the

very able and thoroughly faithful Committee on Roads and Bridges, and particularly to the Chairman of that Committee, who last year bore the burden of carrying forward the great improvements which were ordered by the City Council. At the beginning of the year an appropriation of $80,000 was made for this department, that being the estimated expense of conducting its ordinary affairs, and of keeping the streets in their usual condition. Early in the spring, however, the Board of Mayor and Aldermen were notified of the intention of one of the abutters on Bridge Street to erect a large brick building to be used as a manufactory of furniture. This notice drew the attention of the City Council to the importance of immediately widening that much-used thoroughfare. After mature consideration the enterprise was carried through. It was then thought necessary to pave the street with granite blocks, which was also done. The total cost of the widening, paving, &c., was little short of $70,000. Other improvements in the streets were proposed. Clark Street was continued from School to Main Street; Essex, Mount Auburn, and other streets were widened; brick sidewalks were laid on Cambridge and Magazine Streets, North Avenue, and Broadway. A general, I think that I may say universal, feeling seemed to pervade the minds of the members of the Government that the time had fully come when our highways ought to be put into a condition worthy of a city which had for some time boasted of being the second in the Commonwealth.

Such improvements could not be made without considerable expense. The total amount of money expended on

streets and sidewalks in 1870 was $197,326.23. Of this it is estimated that more than $30,000 will return to the treasury in the form of assessments for edge-stones and brick walks alone. A large sum, not easy to estimate at this moment, will also return to the treasury from assessments for betterments in consequence of the improvements in streets made in various sections of the city. At a late period in the season the City Council adopted orders for the widening of Brattle, Spruce, and Cedar Streets. A beginning only has been made under these orders; but, as soon as the weather will permit in the spring, they will be completely carried into effect. Much opposition has been manifested to some of these improvements; but it is believed that when the work is done, all parties will be well pleased rather than dissatisfied. The expense of the widenings, &c., already ordered, will probably be in the vicinity of $60,000; and I respectfully recommend an appropriation for streets and sidewalks of $150,000 at least. I am satisfied that the whole of this will be needed. Brick sidewalks will be called for on several of the streets — such as Columbia, River, Winsor, Norfolk — during the coming season, and there should be an appropriation sufficient to meet such calls. This is not money wasted, but well invested. It will make us richer, not poorer; and the most economical of us will not, after considering the matter carefully, object to it.

There is an urgent need of a supply of gravel of better quality and more accessible than that which we are now using. In my opinion there have been well-founded complaints of the condition of our streets during the past year.

I am convinced, however, that most, if not all, the fault lies in the poor quality of the material which has been provided, rather than in any neglect on the part of the Committee or the Superintendent. The extreme dryness of the weather has also contributed to render difficult the keeping of the streets in repair. I would urge you strongly to make provision at an early day for an abundant supply of good gravel.

If our finances are considered as in a suitable condition to afford the expense, we ought to do something in the way of paving. As I have already said, a portion of Bridge Street was paved last summer. The remainder of that street, at least, should be paved during the coming season. If a beginning could also be made on Main Street, it would be very desirable.

I trust that before many months have passed away some material progress will be made in the matter of the proper filling of what is known as the "Washington Street District." A plan of this territory, on a large scale, has been made by the City Engineer; and other preliminaries have been attended to. The Act under which we are to proceed is not precisely such a one as we could have wished for, but I presume it is the best that could have been obtained. Much of the delay which has already occurred has come from the peculiar provisions of the laws, and much delay in future will also be experienced from the same cause. If the city could take this whole region, fill it up to a proper grade, raise or remove the buildings, lay out streets of proper width and at proper distances apart, the enterprise would not only cost nothing, but would in all

probability prove a source of some considerable profit. Such a course, however, it is not in our power to pursue; and we must proceed in the best way possible. The present condition of the district is discreditable to our city, and a commencement in the right direction should be made as soon as it is practicable to do so.

Within a few weeks a petition, influentially signed, has been presented to the City Council, asking that the Mayor be requested to apply to the Legislature for an Act authorizing the city of Cambridge to lay out an avenue, one hundred feet in width, as an extension of Main Street, through Front Street, across the marshes and the river, to Dartmouth Street in Boston. Such an avenue would unquestionably prove of great value not only to our citizens, but to a very large section of the city of Boston. The advantages of such a means of communication with the more southerly part of Boston proper, where several railway stations are located, are obvious. I see no objection to the scheme, excepting the cost of carrying it out; but if the City Council should think proper to accede to the request of the petitioners, I would suggest that the Act asked for should provide that the cities of Boston and Cambridge should join in the enterprise. So far as the laying out of such an avenue within our own territory is concerned, we have already full authority; and I would commend to your early consideration the expediency of so doing. The land to be taken will never cost so little in future as at present, being mostly vacant, and I am strongly inclined to think that it would be well to take some steps in the direction of securing it.

In this connection, I will remind you of the fact that there is a large tract of land, mostly flats, on our side of the river, situated between Main Street and the Brookline Bridge, and easterly of Brookline Street, containing, in all, some 17,000,000 square feet of territory. This land, if properly filled up with good clean gravel (which could easily and cheaply be transported over the Grand Junction Railway), and laid out with wide avenues, would be among the most attractive in the environs of Boston for residences of a high class. But if this property is left to the mercy of individual owners whereon to build, at low grade, and with narrow streets, the whole neighborhood will be one very far from desirable, and will be a source of very much less income to the city treasury in the form of taxes. Already we have seen, in other parts of the city, the evil results which come from the cupidity or the folly of owners of low lands, who build below low-water mark, and then expect the city to lift them out of the Slough of Despond. The time to crush out "Washington Street Districts" is when they are in embryo, and not when they are full fledged and full grown. In my judgment the City Council which should have the boldness to take the 17,000,000 feet of land that I have alluded to, and make it what it ought to be, would not, for a time, be the most popular body ever known in Cambridge; but it would be remembered with gratitude in that future time when the wisdom of its action had been demonstrated by the beneficial results which would inevitably flow therefrom.

BRIDGES.

Connected as Cambridge is with other cities and towns toward the south and east by bridges alone, and having no less than seven of those structures to maintain (in whole or in part), it is not surprising that we should view our interests in that direction as of very considerable importance. When we took, many years ago, the West Boston and Craigie's Bridges, with a fund of $100,000, we supposed that the interest on that sum would for ever be sufficient to keep them in repair. By consequence of a remarkable change of circumstances, we find that all our anticipations in that respect were unfounded, and that the whole fund is likely to be swallowed up in the expenses of constructing a new draw, and in making necessary repairs upon West Boston Bridge alone. A year ago I called the attention of the City Council to the legislation on the subject of these bridges which had taken place in the General Court of 1869. By the Act passed at that session the city of Cambridge was required to construct, forthwith, a new draw in each of the West Boston, Craigie's, and Prison Point Bridges, with a clear passage-way of forty-four feet, &c., &c. To have submitted to these requirements would have entailed an immediate expense of about $200,000 upon the city, and I recommended that a petition be presented to the Legislature asking relief from this great burden. A "Committee on Legislative Business" was appointed to properly represent our case before the Committee on Harbors of the General Court. Many protracted hearings were had before that Committee; and a Bill was

finally reported, and passed, of quite a different character from that of 1869. By the Act now in force it is provided that our Bridge Fund shall be appraised and divided between the cities of Boston and Cambridge in proportions to be fixed by three Commissioners appointed by the Supreme Court. It is further provided that the same Commissioners shall apportion the cost of the future maintenance of the two bridges upon the cities of Boston and Cambridge *in the same proportion as the Bridge Fund is divided.* The Act also requires the construction of new draws, with a passage-way of thirty-six feet in width in each of the bridges; and instructs the Harbor Commissioners to fix the location of those draws. The bridges are to be placed in charge of two Commissioners, one to be chosen by each city, who are to do all things needful for their proper management. Until these two Commissioners are chosen, the Mayors of the respective cities are to act in that capacity.

Knowing the great need of a new draw in West Boston Bridge, His Honor, Mayor Shurtleff, of Boston, and myself caused plans to be made as soon as possible, and proposals to be issued, asking for estimates for the work. We requested the Harbor Commissioners to locate the draw. We also endeavored to procure the appointment of the three Commissioners by the Supreme Court. All these things we did in the hope that before another winter came on the travelling public should be better accommodated than ever before. In consequence of the occurrence of unexpected difficulties, our efforts were partially unsuccessful. The "law's delay" prevented the appointment of

the Commissioners by the Court. The Harbor Commissioners located the draws too far west, in our opinion; and the estimates for the draws were not quite satisfactory. Altogether, the result was that the season became too far advanced to permit of work being commenced, and so the whole matter was thrown over to another season. After a second application to the Harbor Commissioners to relocate the draw, and after much delay and discussion, that Board did finally consent to locate the new structure on the spot now occupied by the old draw, provided certain dredging should be done on a shoal extending off the southerly end of the pier, toward the mill-dam. If the draw is built at this spot, instead of that 350 feet west (as at first indicated by the Harbor Commissioners), there will be a saving of from $40,000 to $50,000. This sum can still be thrown away if it is thought best to do so: but in my judgment it was, and is, best to save it; and I gave the subject considerable time and attention and labor with that view. I can see no reason why the fruits of the successful efforts made in this behalf should be rejected, and I do not believe that they will be. The cost of dredging is small, comparatively; and it is the opinion of competent engineers that the operation would not have to be repeated in less than twenty years, and perhaps not in less than a century.

When a new draw is built in this bridge, I trust that it will not only be placed where the old one now is (to save expense) but that it be a *not* very elaborate and costly structure. It is my opinion that in less than twenty years, there will not be a draw in either of the bridges over

Charles river. The traffic *over* these bridges is already vastly disproportionate to that *through* them; and this disproportion is constantly increasing. It seems to me a great absurdity to continue much longer the enormous expense of building and maintaining draw bridges, and to perpetuate the almost constant interruption of land travel by the opening of the draws; when the freight *on* the river can so easily be transported by barges or lighters. If the cost of such transportation should be found to be somewhat greater than by the present method, it would be much more than compensated for by the money saved on the construction, care, and maintenance of the draws. Better levy tolls upon the railroads and the travelling public to pay the extra cost of the water-borne traffic, than to for ever continue the present system. What would the inhabitants of London think of a proposition to put draws in their bridges across the Thames? And yet the business of London on that river is incomparably greater than the business of Boston, Cambridge, and Charlestown, on the Charles.

The favorable legislation of 1870, upon the subject of these bridges is largely due to the wise foresight and legal experience of Alderman Parker, of the First Ward; and to the tact, good judgment, and indefatigable exertions of A. B. Wentworth, Esq., who was a member of the House of Representatives from this city. All our Representatives and the Senator from this District gave their valuable aid. Much praise is also due to the members of the "Committee on Legislative Business" and to the Counsel for the City, who presented our case to the Committee on Harbors.

The appropriation for bridges for the financial year ending Nov. 30, 1870, was $13,000. All of this was expended; and some bills — perhaps to the amount of $1,500 — were contracted, which will have to be paid this year. The Legislature having placed upon us the burden of maintaining so much of the Brookline Bridge as lies within our limits; and it appearing, on a careful examination of the structure, that it was scarcely fit or safe for public travel, the City Council ordered it to be rebuilt, at a cost of about $6,000. The Brookline end has also been rebuilt by that town, and the whole bridge is now substantially a new one. The original bridge was a very flimsy affair, and at the beginning of last year was in a dangerous condition. Considering that there is every probability that West Boston Bridge will be closed to ordinary travel for several weeks next summer, the rebuilding of this Brookline Bridge was not undertaken a moment too soon.

The Superintendent of Streets recommends an appropriation of $15,000 for this department during the coming season; but he includes in his estimate some of the repairs which it will be necessary to make on West Boston and Craigie's Bridges. Those bridges, however, will, in a few weeks, be placed in the hands of the Commissioners, who are, in future, to do all things that may be required to keep them in good order; and the expense of so doing will be met, not from our appropriation for bridges, but from the Bridge Fund, so long as that fund may last; which will be at least one year. I therefore recommend an appropriation of only $8,000 for the care and repair of bridges.

SEWERS.

The operations of the City Council of 1870 in relation to sewerage were of unparalleled magnitude. The total appropriation for sewers was $125,000; and of this was expended $115,191.57, and there are some outstanding bills not yet settled. In the ten years from 1859 to 1868, inclusive, the whole sum expended upon drainage was less than $56,000. In 1869, $35,000 was expended; and in 1870, as before stated, somewhat over $115,000. This last sum is nearly as great as the whole amount expended on sewers from 1846 (when the city was incorporated) to the close of 1868. The whole length of sewer constructed last year was about five and a half miles; and a large portion of it was of very large size, intended as "trunk mains," into which smaller sewers will discharge the drainage of vast tracts of territory. The great Oxford Street sewer has at last been completed. In consequence of difficulty with the contractor, it was found necessary to give the Committee on Reservoirs and Drains power to proceed with the work. It was accordingly taken in charge by them, and finished with all possible dispatch. Great difficulties were encountered in constructing this sewer, and the cost has been very large; but the benefits to be derived will furnish a sufficient justification for the outlay. Another great sewer was that built in North Avenue, from near the Fitchburg Railroad Bridge to Alewife Brook. The expense of this work was over $36,000, and it will improve a very extensive region which needed drainage to make it suitable for human habitation.

In the opinion of the City Engineer, a necessity exists for the construction of an outlet sewer, through Harvard Street, from Columbia Street; terminating in a receiving basin, to be built for the purpose on the flats between Main Street and Broadway. Other smaller sewers will, doubtless, be asked for by citizens. I am inclined to think, that, in view of the recent very large expenditures in this department, there should be a comparatively small appropriation the present year. The amount I am not now prepared to indicate, but it is probable that $25,000 will be sufficient.

I commend to your attention the instructive and excellent Report of the City Engineer, who now has full charge of our system of sewerage. His thorough knowledge of the subject, scientific attainments, and practical ability, eminently fit him for the discharge of the very important trusts which have been placed in his hands.

WATER WORKS.

The work of extending the pipes supplying Fresh Pond water has been carried forward with the accustomed vigor and enterprise of the gentlemen who have had charge of this most important department. The total amount of pipe laid during the past season has been 36,647 feet, or about seven miles. In all, there are about sixty miles of main pipe laid in the whole city. As we have only about seventy-five miles of streets, there is not very much more to do in this direction. In consequence of the continued absence of heavy rains, the pond has fallen to a lower

level than ever before known. Still, the supply of water has been sufficient; and, thus far, the Commissioners have not felt constrained to ask consumers to be particularly careful in its use. Several months since, Mr. S. W. Dudley was chosen Superintendent. His well-known business qualities, indomitable energy, and industry are ample guaranties that the Works will be well managed. The receipts from the Water Works have constantly and rapidly increased, while the rates have been fixed at very reasonable figures. The increase during the last year has been over $18,000; and the total receipts for 1870 are three times as great as they were in 1865, when the Works were purchased by the city. The number of families supplied is now 5,354, being an increase during the year of 491. In addition to this, immense quantities of water are supplied to manufacturing and other business establishments. The total cost of the Works to Nov. 30, 1870, has been $885,007.15. The income from the sale of water, &c., continues to more than pay the interest on the debt, besides meeting the requirements of the laws in relation to the Sinking Fund. That Fund amounts at present to $59,673.62, being an increase from last year of $31,947.18. A portion of this ($11,335.75) has accrued from the sale of land and main pipe belonging to the Works in Somerville, and land and building on Broadway, Cambridge; and no such increase can be counted on in future. There can be no question, however, that in the course of twenty-five years the Fund will exceed the entire Water Debt, even if that debt should be increased another half-million; when the rates can be reduced to a nominal sum, or, if kept up,

the proceeds can be applied to the extinguishment of the other indebtedness of the city, or to the payment of current expenses. I respectfully refer you to the Report of the Water Board for a full statement of the financial condition of the Works. You will there find evidence that the purchase and extension of this property was one of the wisest acts of any city government.

In their Report the Commissioners state that there is, in their opinion, a necessity for a new set of pumps, similar to those now in use. It will be admitted by all that the Works should be provided with materials for any emergency that can arise; for the consequences which would follow from the cessation of a supply of water to this community cannot be too carefully guarded against. The only question, therefore, will be, Have we pumps of sufficient capacity to fall back upon, in case of accident to those in use? The Commissioners think not; but they do not desire that the City Council should act hastily upon so important a matter as the purchase of new pumps at an estimated cost of some $60,000. They will favor, I doubt not, the fullest and strictest investigation; and none will be more pleased than they if it should be found that this great sum can be saved. They have not given their opinion, however, without much deliberation; and they fully believe that the course which they recommend is the correct one. It will be for you to judge.

CEMETERY.

In the year 1854 the grounds now known as the Cambridge Cemetery were dedicated to the sacred purposes to

which they have since been devoted. Originally of a wild, rough, and uneven character, they have been brought, by the expenditure of much material and labor, to a condition of great attractiveness and beauty. Situated on the banks of the river, which courses along their southern border; diversified by hill and dale and level plain; shaded by trees of mature and lofty growth; laid out in accordance with the dictates of a correct taste which have controlled their management throughout; furnished with good roads and pleasant pathways; decorated with plants and flowering shrubs and ornamental waters; adorned with many fine specimens of art erected in memory of those who sleep beneath, — containing all these elements of attraction, it is not surprising that this resting-place of the departed has gained the admiration of our citizens, or that a great portion of it has already passed into their possession as the spot where, in due time, they and their families shall quietly repose.

It has been the aim of the Commissioners, from the first, to so manage the grounds as to enable all the residents of Cambridge to become the owners of lots. The prices have been fixed at as low a rate as possible, taking into account the necessary cost of improving the grounds and a portion of the annual expense of maintenance. The number of interments during the past year was 344, being three less than in the year previous. The whole number of interments in the cemetery has been 6,812. During the year 1870 various improvements have been made on the premises, for a fuller account of which I respectfully refer you to the Report of the Commissioners.

The expenditures for 1870 were	$11,012.96
Receipts for 1870	5,933.25
Excess of expenditures over receipts	$5,079.71
The total appropriation in 1870 was	$11,012.96

And that exact sum was expended.

The number of lots now on hand and prepared for sale is ninety-seven. Their appraised value is $11,455. In view of the fact of so large a number of lots being ready for purchasers, the Commissioners are of the opinion that a less appropriation than was made last year will be sufficient for the year 1871. I recommend that $8,000 be set apart for the purpose.

The old burial-ground in Ward One was, in the year 1868, put in much better order than it had been for many previous years. It is still susceptible of further improvement. I recommend that the proper Committee be instructed to see that this ground be cared for in such a way as to be pleasing to the eye and creditable to all concerned.

On the third day of November last a Memorial Stone, in honor of the men of Cambridge who fell in the battle of April 19th, 1775, was set up in this cemetery and dedicated with appropriate services. This stone is of fine Scotch granite beautifully polished. It stands on the spot where the patriots were buried, and bears a suitable inscription, which, we trust, will preserve the names of those noble men for many a century.

PUBLIC SQUARES.

It is to be feared that posterity will deplore the fact that their ancestors had not been more wise and far-seeing in relation to the subject of public parks or squares. It is hardly creditable to those who lived fifty years ago — for we must not be *self*-reproachful unless we intend repentance — that they did not set apart a few acres in those portions of Cambridge known as the Port and East Cambridge for the purpose alluded to. Not that land was particularly cheap in those days, — for the value of land almost always keeps pace with the financial ability of the community, and is as cheap now as then, — but that land was, half a century ago, in Cambridge, largely exempt from incumbrance by buildings of any sort, and was very little improved by the erection of structures of much value. There were at that time extensive tracts of vacant land entirely unused for dwellings or shops, and it was then that foresight should have been exercised. Fortunately for one section, there were men a hundred years ago inspired by martial ardor, who desired some opportunity and plenty of room to exercise themselves in the military art; and so it came about that the Common in Ward One was presented by certain generous individuals to the town, to be for ever used as a training-field. This was one of the victories of war, which, we may regret, did not produce similar advantages in other parts of the town. Certain it is, however, that there are scarcely three acres of public ground in the whole territory known as Wards Two, Three, and Four; and this, I think, is very far from being as it should be.

The last City Council instituted an inquiry into the expediency of purchasing the land bordering on Harvard and Prospect Streets, and adjoining what was formerly the "old burying-ground;" removing the buildings; grading the whole square, and putting it in proper order for a Public Park. Owing to the very high prices demanded by the owners of the land, and to the somewhat costly character of a few of the buildings, the Committee came to the conclusion that the enterprise was one which they could not recommend; and their Report was accepted by the City Council. It is much to be regretted that such a result was arrived at. It may be that, if the owners of the property had met the Government in a little more liberal spirit, the project would have been carried out; and it may not, even now, be too late. I make no further remark in regard to it, excepting to say that if this improvement is ever to be accomplished it were well that it were done quickly.

A different state of things exists in relation to a large tract of land bordering on Cambridge Street, and lying between Winsor Street and the Grand Junction Railway. If that land can be purchased at a reasonable price; a portion of it laid out as a square, bordered by wide streets, and the remainder divided into suitable lots for building, — the city treasury will not, in five years' time, be a dollar the poorer for the operation; while a great boon will for ever be secured to the thousands of persons who are destined to inhabit that part of the city. This matter, I trust, will not be permitted to slumber. There are no buildings of value to be destroyed or removed, and the land will be immediately available.

The care of the Common and other smaller parks ought to be vested in some officer, who should see that they are kept in good condition. The same person could also act as Forester, having charge of the trees on all public streets.

POLICE.

After a somewhat careful examination into the subject, I am able to say that the present police force of Cambridge is worthy of all commendation, for its zeal, efficiency, and good discipline. An increase in the number of patrolmen was made at different times, in the course of the past year, making the whole number forty. About a month ago an Order was adopted by the Board of Mayor and Aldermen, changing the hours of duty in such a way as to render necessary another increase of the number of men; so that, under the new system, the total number will be fifty. This change, as it seems to me, was imperatively demanded by the justice of the case; and it was certainly asked for by a very large body of our most influential citizens and largest tax-payers. Ten hours of night duty is more than the physical constitutions of the men ought to be called upon to bear; and fourteen hours of day duty is equally arduous and wearing. Under the new system the city has a right to expect the most thorough vigilance and attention to duty, and such will be exacted from every member of the force.

The arrests for crimes and misdemeanors during the year 1870 numbered 1,695, being an increase of 284 over those of 1869. The number of lodgers in the various Station-Houses was 1,349, being an increase over the previous

year of 145. As our city grows in population the number of unfortunate persons who are designated as "lodgers" will naturally increase also. In the opinion of the Chief of Police, separate apartments should be furnished for these poor people, who are not to be classed as criminals, and who ought not to be in any way treated as such. If the suggestion of the Chief is a practicable one, I trust that it will be carried into effect.

I beg leave to renew my recommendation of last year, that the Police Court be immediately provided with better and more spacious apartments. The room at present used by that tribunal is altogether too limited in its dimensions, and quite unworthy of the dignity of the Court or the reputation of the city. An investigation of the subject will show, I think, that the required accommodations can be furnished at small expense, and with no necessity of purchasing more land. This is a matter about which there should be no further delay, and I trust that it will receive your early attention.

The Police Station for the Second District still remains in the basement of the City Hall. While I am quite sure that the place is rather unfit for the purpose, I hesitate to repeat my suggestion of a year ago for the construction of a new Station and Ward Room. Both of these it would be very desirable to have; but in the multiplicity of wants, there are some more pressing than others, and these are among those the supplying of which can be postponed to a more convenient season. While Wards Two and Four will both demand at the proper time better accommodations in the way of Ward Rooms, the voters of

those Wards are willing, I make no doubt, to wait until that more convenient season arrives. When the new school-house at the corner of Broadway and Inman Street is finished, perhaps the house now occupied for that purpose, on Harvard opposite Essex Street, may be fitted up as a Ward Room for Ward Two.

The new Police Station in Ward Three will soon be completed, and will be found to be a very great improvement over the old. The accommodations for the officers, the lodgers, and the prisoners, will be ample and exceedingly convenient.

FIRE DEPARTMENT.

It is a matter upon which you and all other citizens are to be heartily congratulated that our city has, for the twelve months, ending Nov. 30, 1870, been so remarkably exempt from the ravages of fire. The value of the property destroyed during that period was $40,750, and the insurance upon the same was $27,750. During the same period in 1869 the loss was $264,423. The whole number of alarms in 1870 was 46. The number of fires in the city was 33 ; out of the city, 4.

The Fire Alarm Telegraph, which has been in operation about sixteen months, has proved itself worth all that it cost, many times over. The wires are now in process of extension to the engine-house of the Water Works near Fresh Pond ; and will soon, also, be attached to four church bells, in different sections of the city, for the purpose of giving early information of the exact locality of any fire which may break out. Other extensions and additions of much practical value have been made.

The Chief Engineer, in his Report recently submitted to the City Council, recommends the purchase of an additional steamer to be located near Atwood's Corner. Last year I favored this idea, and said that such an addition to the apparatus of the department ought to be made as soon as possible. Further thought and investigation of the subject have caused me to somewhat change my views upon it. The expenses of our department are enormous, — for the next year they cannot be less than $45,000, which is $4,000 more than the *whole* expenses of the city in the first year of its existence, twenty-five years ago, — and I hesitate very much to advocate any increase in this direction. To accommodate the steamer and all its appurtenances, we should be obliged to erect a house, at an expense of, perhaps, $15,000; so that the whole first cost of the addition would not be less than $25,000. The running expenses of a steamer are not less than $5,000 a year, and probably exceed that sum. Thus it will be seen that the necessity which would justify the City Council in making this addition ought to be a clear and obvious one. It is quite apparent that, while the employment of steamers is a vast improvement over the old hand-engine method, it is also very much more expensive. What we really need in Cambridge is the advantage enjoyed by the citizens of Charlestown and some other cities; namely, an abundant supply of water, discharged through pipes of large capacity, and with a force which renders pumping unnecessary. I believe that in Charlestown there are but two steam fire-engines; the remainder of the department being substantially one of hose-men who merely direct the water, which

flows through hydrants with great force and rapidity. This is the system that we ought to strive for, and I have strong hopes that within a few years we may secure and enjoy it. The matter has frequently been discussed in the Water Board; and I am happy to say that I have found the gentlemen of whom that Board is composed liberal in their views, and far-seeing in their anticipations of what the future will demand. The Water Company, from whom we obtained these Works, were much straitened in their means, and were consequently obliged to practise great economy. The pipes that they laid were of small calibre, and quite inadequate for the full supply of the wants of a city such as Cambridge now is. This great defect the Water Board, has, for years, endeavored to cure. Larger pipes are laid everywhere, and old pipes are taken up, in many cases, in order that they may be replaced with others of greater capacity. Hydrants are gradually multiplying, and at the proper time the stand-pipe will be raised so as to afford a "head" of water equal to any in this vicinity. In view of all these improvements, present and prospective, it would seem that four steam fire-engines ought to be sufficient for our purposes; especially as we are always kindly remembered, in case of fire, by the departments of Boston, Charlestown, and Somerville; which remembrance we have reciprocated in the past as we shall, I trust, in the future. This matter of an increase in the apparatus it will be for you to examine and decide. At present, I am inclined to deem it unnecessary.

The engine-house in Ward Three was considered by the City Council of 1870 as unfit for the purposes to which it

was put; and a new building has been erected, at a cost of some $20,000, which contains not only accommodations for the steamer, &c., but is also fitted up as a police station. There is a convenient and spacious ward room in the same building. These changes were much needed, and have been effected without extravagant expenditure. The present engine-house and land can probably be sold for $5,000, or more, thus making the net cost of the improvements only about $15,000.

The discipline of the department is believed to be in all respects good, and the demands of duty invariably meet with a ready response. The apparatus is said by the Chief Engineer to be in excellent condition; and the houses, &c., are in satisfactory order. The only change suggested by him is in regard to the stable provided for the horses of Steamer No. 5. The proper committee ought to be instructed to examine into the facts, and see whether or not different arrangements are desirable.

ALMSHOUSE.

As human society has been constituted from the beginning of the world, the succession of the poor and helpless has, unfortunately, never failed. To care for these who cannot care for themselves is a duty which is imperative upon us. This we strive to do tenderly, and with a due regard to the feelings of those to whom the bitterest part of poverty is the consciousness of dependence upon the bounty of others; and at the same time economically, in the interest of the whole community, whose burdens are heavy, and whose resources are severely taxed in many

ways. In a population like ours, made up mostly of persons intelligent and self-respecting, there exists a strong aversion to entering the Almshouse as one to be wholly supported at the public charge. There is in the name of "pauper" something which our people, self-reliant in their prosperous days, decidedly object to; and thus it comes that, when such persons as these are driven by the pangs of hunger or the pinchings of cold to seek relief, they ask that it may be furnished to them in their own poor places of abode; where in wretched apartments, uncomfortable in every way, they prefer to remain rather than to avail themselves of the more pleasant accommodations at the Almshouse. This feeling is not a discreditable one, and it is appreciated by those who have charge of the city's charities. Of the sum appropriated for the support and relief of the poor in 1870 not less than $3,646.00 was paid out by the Overseers for what is called "outside assistance." Many poor families, by the little aid of a ton of coal, a few groceries, and a moderate amount of clothing, so furnished, were able to get through the winter, until the brighter days of spring and summer arrived, when work and its corresponding remuneration came also, to make them independent again.

The whole amount expended in this department for 1870 was		$39,395.52
Income from farm, ledge, &c. . .	$17,652.26	
Bills due, but not yet collected . .	6,119.15	
		23,771.41
Expense over income 1870		$15,624.11
Expense over income 1869		12,428.57
Increase in 1870		$3,195.54

Value of personal property 1870	$25,530.06
" " " " 1869	23,200.40
Increase 1870	$2,329.66

The increase in the net expenses of the institution is attributable to the extremely dry weather of the past summer, which destroyed a large portion of the crops; to the cost of partially refitting some of the rooms in the house; to the water rates; and to the increase in the number of persons supported. Had the usual crop of vegetables been produced last season the net expenses would in all probability have been about the same as in 1869. The average number of inmates during 1870 was 75. The year previous it was 66. The increase is accounted for by the general depression in many branches of business, and this reason will also account for the unusually large cost of "outside assistance." Remarks of an unfavorable nature have sometimes been made in regard to the management of this establishment, and it has even been said that our paupers could be boarded at hotels at less cost than the city is now called upon to bear. A careful examination will show that if all the expense of outside assistance is left out of the account, and if all sums paid to Hospitals, Asylums, Reform Schools, &c., are also left out, the net cost of supporting the 75 paupers provided for in the house last year was $8,522.54. This gives about $113.50 for each person. Or, to state it in another form, it is about $2.18 for the entire cost per week of providing food, shelter, clothing, medical assistance, and all other things, for each individual supported. If it is thought right to add interest upon the value of the house and farm to this amount, it

will, even then, not quite come up to $3.00 per week for each person. This is not an extravagant expense for board alone, to say nothing of the cost of clothing and other articles.

In the course of the past twelve months various improvements have been made in the buildings and grounds, under the charge of the Overseers; all of which are alluded to in their Report, which will soon be laid before you in print. In that Report the suggestion is made that additional territory be purchased on the north-easterly side of the farm. For the reasons mentioned by the Overseers I respectfully commend the matter to your careful consideration.

SOLDIERS' MONUMENT.

The Monument, which was intended to commemorate the patriotic deeds of the Cambridge soldiers and sailors in the War of the Rebellion, had, a year ago, not risen above the foundation stones. As soon as the weather would permit in the spring of 1870, the contractors proceeded with the work. Such was the magnitude of the undertaking, that, although the stone had all been prepared during the previous winter, it was found impossible to complete the Monument on the 17th of June, as provided in the contract. On the 13th of July, however, it was substantially finished; and on that day the dedicatory ceremonies took place, in presence of His Excellency the Governor of the Commonwealth, other distinguished gentlemen, and a large concourse of citizens. At a later period a handsome iron fence, resting on a granite base,

was erected around the Monument; the grounds in its vicinity were newly graded and sodded, and trees were set out. The whole effect of the structure and its surroundings is very fine. Whether the monument, or the statue upon its summit, are open to unfavorable criticism, as some have asserted, I am not able to judge; but to one who does not pretend to be a connoisseur, their appearance, taken as a whole, is imposing and extremely pleasing. In my opinion the city has strong reasons to be quite satisfied with the result of the conceptions of the artists who designed them, and of the labors of the workmen whose skill wrought out in granite those conceptions.

The total cost of the Monument, including every expense connected in any way therewith, was $39,762.23. This is $14,662.48 in excess of the original sum set apart by the City Council. The Monument itself did cost, in fact, only the $25,000 for which the contract provided. The additional amount was made up of the expenses of dedication, cost of foundation, iron fence, pay of architect, &c., &c. It is too often the case that in estimating for public works no allowance is made for the inevitable "extras" which come in to swell the expenses. In this instance, however, I think that our citizens have no reason to regret the large expenditure. The structure is one which will probably stand for many hundreds of years, and it will always be regarded as a fitting memorial of one of the grandest periods of our national history.

CONCLUSION.

Gentlemen of the City Council: —

In the course of a very few weeks from the present moment we shall have completed the first twenty-five years of our existence as an incorporated city. As we look back over that quarter of a century, — which seems so short in the retrospective view, — we are struck with the remarkable changes that have taken place, even within our own municipal limits. Then, our territorial boundaries were the same; but our population was less than one-third, and our valuation was only one-fifth their present proportions. Then, the annual appropriation for city expenses was but one-thirteenth as great as now, and we had about one-thirteenth as many comforts and conveniences. Those of you who can remember the times that I allude to will not regret that they have passed and gone. No citizen, whatever may be his views of economy, desires to return to the days when our roads were largely made up of mud or dust; when our fire department, unaided by the power of steam, and uninformed by the electric alarm, toiled, for precious fractions of hours, to find a fire, and then toiled for many precious whole hours to extinguish it; when three or four feeble constables endeavored to protect property and life against those who would unlawfully take either the one or the other; — when sundry other of the numerous advantages, of various kinds, which we possess to-day, were unknown and unthought of.

Cambridge is no longer what it once was, — a broad expanse of marsh and plain, with a few tracts of more ele-

vated ground, covered here and there with forest trees; no longer the little hamlet, clustering around the venerable walls of the University; no longer the country town, almost stationary in its growth, whether of population or of business; no longer the infant city, just discarding its swaddling clothes, and learning to walk alone; no longer the mere passage-way, or tunnel, through which poured, in former days, the current of men and merchandise between the surrounding country and the metropolis of New England. All those things have passed away, and the second quarter of a century of our municipal life opens upon a new era. Claiming now a population of forty thousand souls; possessing a valuation of nearly forty-five millions of dollars; with hundreds of acres of land still unused for dwellings or manufactories, and all this land within easy distance of the great city over the river; with all the approved means of transportation known to man; with an abundant supply of good water; with all the other conveniences wherewith a great community should be furnished; — having all these ready to our hands, or easily obtainable, there seems no reason to doubt that there is a brilliant future before us, if we only have the enterprise and the courage to take, at the flood, the tide which leads on to fortune. I would not advocate a policy of extravagance and waste. As custodians and guardians of the public treasury, we have no right to enter upon a course of procedure not warranted by the most careful and judicious regard for the prosperity and growth of the city. But I do desire, most fervently and earnestly, that our position may be maintained and

even advanced; to the end that population may be induced to flow in upon us in still greater volume; building up, enlarging, and strengthening all our important interests, and hastening the day when we shall number at least one hundred thousand souls.

HAMLIN R. HARDING.

CAMBRIDGE, Jan. 2, 1871.

ANNUAL REPORT

OF

THE COMMITTEE ON FINANCE.

The Joint Standing Committee on Finance herewith submits its Annual Report to the City Council, in compliance with the ordinance.

APPROPRIATIONS.

The total sum appropriated by the Annual Supply Bill, which is reported and acted upon early in the year, was $816,682.90. Included in this amount was $60,000 for the Extension of the Water Works, for which Bonds of the City were issued, to run for twenty years from their date, bearing interest at 6 per cent. per annum, as is the case with all our Water Bonds. As the City's Bonds, known as "Water Bonds," have never been applied to any other use than the purchase and extension of the Water Works, the cost of the Works can be learned at a glance by referring to the annual statement of the City Debt, as furnished by the Treasurer, which can always be found in its proper place in the "City Document."

Whenever appropriations are made subsequent to the passage of the Annual Bill, the means to meet them must be provided by the creation of a City Debt. Additional sums were set apart this year for various objects, to the amount of $215,000. So that the account may be stated thus: —

Total of Appropriations for 1870	$1,031,682.90
" " Expenditures	975,518.19
Balance	$56,164.71

This unexpended balance lapses into the Treasury at the close of the financial year, November 30, and is immediately reappropriated to carry on the Government until the new City Council, which comes in on the first Monday of January, provides means in its own way.

The total expenditure for 1869 was $777,940.92. It will be seen that the amount disbursed the present year shows an excess over the last year of $197,577.27, — nearly two hundred thousand dollars. This was owing to the strong desire of the City Council to meet the pressing demand for sewerage, and street improvements generally; consequently great but deserved attention has been given to the Departments of Streets and Drains. Other departments have required more than formerly. Indeed, the rapid growth of our city entails increased expense to meet the public needs, which are constant and imperative. We mention here the amounts which have been expended for a few leading objects in excess of last year:

	1869.	1870.
Reservoirs and Drains	$35,106.73	$115,191.57
Streets and Paving	96,576.78	197,480.15
Public Instruction	141,216.93	158,452.36
	$272,900.44	$471,124.08

It appears from this statement that the increase of expenditure for the present year over the previous one, in these three departments alone, accounts for the entire aggregate excess. But much more remains to be done in the same direction. "The safety and convenience of the inhabitants" will require it of our successors; and we trust that they will respond to the demands of their constituents. Besides the great improvements in our streets, and the new sewers, a new police station has been provided in Ward Three; land for a large school-house in Ward Two has been purchased; a wharf on Main Street has been added to the City's property; and other objects of permanent value have been secured, at a cost of about $70,000. Full details will be found in their proper place in this Report. It is believed that the property here referred to has been acquired for a sum much below its present value, and that it could be disposed of at a handsome advance.

RECEIPTS AND EXPENDITURES.

The total Receipts at the Treasury for the year, including temporary loans, was	$1,523,652.34
Balance on hand, Dec. 1, 1869	63,338.06
	$1,586,990.40
Total of Expenditures	1,503,132.83
Balance in Treasury, Dec. 1, 1870	$83,857.57

The estimates of your Committee as to the receipts of the year have been verified by the results. In several of the items there has been an increase, and in others a falling off. No one shows so marked an improvement as the receipts for Water, which is upwards of $18,000. In other particulars there has been no change worthy of special notice.

SINKING FUND OF THE WATER WORKS.

This Fund on 30th June, 1869, was	$27,726.44
Added during the year	31,540.18
Amount of the Fund, June 30, 1870	$59,266.62

The Fund is invested thus: —

Cambridge Water Bonds	$58,924.40
Temporary Loan to the City	342.22
	$59,266.62

It will be observed that the Fund has more than doubled since the last Report. This was owing to extraneous causes, independent of the regular income of the Water Works; and such an extraordinary increase in a single year will not probably ever again occur. We give the several amounts making up this increase, for information: —

Received for Main Pipe sold in Somerville * . . .	$4,753.01
" " Land in Somerville	5,882.74
" " Land and Building on Broadway . . .	700.00
" from Water Rates, in excess of care and repair of the Works, and Interest on the Water Bonds	14,410.49
Received Interest on Loans to the City	4,152.20
" " " Sinking Fund	1,641.74
Total Increase for 1870	$31,540.18

The Statute authorizing the City to purchase the Water Works required that a sum equal to one per cent. of entire cost should be added, year by year, to the Sinking Fund. This has been done, and very much more; and the Fund and the Works, in their present condition, justify in a striking manner the policy of the City Council that effected the purchase. More than all other causes combined, these works will develop and enlarge the lasting interests of the City; a foretaste of which we have had in the last few years.

ANALYSIS OF THE CITY DEBT.

Amount of Permanent Debt, Dec. 1, 1869, exclusive of the Dowse and Sanders Funds. . .		$1,280,400.00
Added in 1870: Water Bonds		60,000.00
Cambridge City Bonds		20,000.00
Notes of the City due in 1871		102,000.00
" " " " 1872		100,000.00
		$1,562,400.00
Deduct Sinking Fund of Water Works		59,266.62
Total, Dec. 1, 1870		$1,503,133.38
" Dec. 1, 1869		1,252,673.56
Increase in 1870		$250,459.82
Deduct Water Bonds issued 1870		60,000.00
Increase, exclusive of Water Debt		$190,459.82

* Formerly, a portion of the town of Somerville obtained its water supply from Cambridge. That is now discontinued, and the supply is furnished by the City of Charlestown. In consequence of this change, Cambridge sold the pipes which she had laid there, and a piece of land obtained when the Water Works were purchased, the city succeeding to the franchise and property of the Cambridgeport Aqueduct Corporation to which the land formerly belonged.

We make a distinction between the debt contracted for the usual city purposes and the Water Debt; because the people are directly taxed for the interest of the former, while the interest on the latter is provided for by the Water Rates.

We classify the entire indebtedness as follows: —

Trustees of Daniel White Charity (payable on demand)	$5,000.00
Cambridge City Bonds	426,000.00
" Water Bonds	888,400.00
Sundry Notes of the City	243,000.00
	$1,562,400.00
Deduct amount of Water Bonds	888,400.00
Balance, the interest on which is directly taxed to the people	$674,000.00

The Debt bears various rates of interest, varying from five to seven per cent.

Amount at five per cent.	$406,000.00
" five and one-half per cent.	11,000.00
" five and three-fourths per cent.	30,000.00
" six per cent.	920,400.00
" six and one-half per cent.	50,000.00
" seven per cent.	145,000.00
Total of Debt	$1,562,400.00

In the foregoing analysis, no account is made of the Dowse Fund, $10,000; and the Sanders Temperance Fund, $10,000; both of which are invested in the City's notes. It is required that the interest on both these amounts, $600 each, shall be annually appropriated to the objects designated. So long as this is done, the City is not to be called upon for the principal.

INCREASE OF PERMANENT PROPERTY IN 1870.

Land on Broadway for School House, Ward 2	$8,000.00
School House in Ward 4	25,000.00
Amount carried forward	$33,000.00

Amount brought forward, ...	$33,000.00
Land and School House in Ward 1	11,500.00
Police and Ward Room, Ward 3	19,500.00
Wharf at Lower Port	9,500.00
	$73,500.00

LIABILITIES AND ASSETS, DEC. 1, 1870.

The liabilities of the Treasury are: —

State and County Tax	$88,672.40
Interest accrued, but not due	3,832.75
Bills approved, but not paid	4,012.77
	$96,517.92

Which we offset thus: —

Balance in Treasury	$83,857.57
Due from State, under Corporation Tax Act . .	28,051.23
State Aid	19,000.00
Rent of Armory, and sundry minor accounts . .	239.19
Drain and Sidewalk Assessments, uncollected . .	23,712.73
" " " ordered, but not assessed	5,863.26
Drain Assessments, not ordered (estimated) . .	60,000.00
Uncollected Taxes *	72,392,77
	$293,116.75
Deduct liabilities, as above	96,517.92
Excess of Assets, Dec. 1, 1870	$196,598.83

No estimate has been made of the amount of betterments that will accrue on account of street widenings; but it cannot be less than twenty thousand dollars.

* A portion of this has been standing for many years. Three-fourths of the amount will probably be realized.

UNCOLLECTED TAXES AND OTHER ASSESSMENTS.

The taxes assessed for the year 1870 were: —

For City purposes	$533,544.40	
State Tax	63,025.00	
County Tax	25,647.40	
		$622,216.80
Of the above tax the amount collected is	$535,255.36	
Discounted	21,571.54	
Abated	12,341.86	
		569,168.76
Balance uncollected		$53,048.04
Of the tax of 1869, there remained uncollected, Dec. 1. 1869		$43,096.75
Of that amount there has been collected	$32,084.52	
Abated	2,568.77	
		34,653.29
Balance uncollected		$8,443.46
Of the tax of 1868, there remained uncollected, Dec. 1, 1869		$6,635.16
Of that amount there has been collected	$2,774.20	
Abated	302.48	
		3,076.68
Balance uncollected		$3,558.48
Of the tax of 1867, there remained uncollected, Dec. 1, 1869		$3,690.74
Of that amount there has been collected		52.98
Balance uncollected		$3,637.76

Of the taxes of 1866, 1865, and 1864, there remains uncollected		$3,705.03
The amount of Assessments to defray the expense of constructing Sidewalks, committed to the Treasurer in 1870, is	$36,340.07	
Amount of Assessments uncollected, Dec. 1, 1869	1,948.42	
		$38,288.49
Of that amount there has been collected.	$19,758.98	
Abated.	386.13	
		20,145.11
Balance uncollected		$18,143.38

The amount of Drain Assessments, committed to the Treasurer in 1870, was	$14,876.36	
The amount of former Assessments, uncollected Dec. 1, 1869, was .	787.79	
		$15,664.15
Of that amount there has been collected.	$10,010.10	
Abated.	82.70	
		10,092.80
Balance uncollected		$5,571.35

POLLS AND VALUATION OF ESTATES.

The following table shows the valuation of Estates and number of Polls in the city, as appears by the books of the Assessors on the first day of May last. Stocks in Massachusetts Corporations, owned by our citizens, are not included in the personal property here set down. These stocks, it is thought, are worth about two millions of dollars.

District.	Ward	No. of Polls.	Personal Estate.	Real Estate.	Total.	No. of Dwellings.
I.	1	1524	$5,058,300	$8,210,100	$13,268,400	1082
II.	2	2520	4,200,900	7,576,900	11,777,800	1692
III.	3	2254	1,777,900	4,932,400	6,710,300	1118
II.	4	2265	1,794,300	5,049,300	6,843,600	1472
I.	5	872	1,165,700	3,331,400	4,497,100	545
Total . .		9435	$13,997,100	$29,100,100	$43,097,200	5909

This statement exhibits an increase for the year, in personal and real property, of $3,886,400

Increase in number of Polls 502

" " Dwellings 439

The rate of taxation was $14 per thousand, subject to the deduction of four per cent. allowed by the ordinance.

We append the report of a sub-committee appointed to examine the books and accounts of the Treasurer; also the Treasurer's account in full, and the statements of the Auditor, showing in detail and in recapitulation the appropriations and expenditures.

Respectfully submitted.

HAMLIN R. HARDING,
JOSEPH H. CONVERSE,
JOHN S. MARCH,
HORATIO G. PARKER,
SEYMOUR B. SNOW,
ROBERT L. SAWIN,
JOHN WILSON,
ISAAC BRADFORD,
FRANCIS M. MASON,

Committee on Finance.

DECEMBER 27, 1870.

REPORT

OF THE

TRUSTEES OF THE SINKING FUND OF THE CAMBRIDGE WATER WORKS.

The undersigned, Trustees of the Sinking Fund of the Cambridge Water Works, respectfully submit the following Report: —

Amount of Fund, June 30, 1869		$27,726.44
Received from sale of Main Pipe, Somerville	$4,753.01	
Received from sale of Land in Somerville	5,882.74	
" " " " " and Building on Broadway	700.00	
		11,335.75
Received of Water Registrar for rates, supplies, &c., for the year . .	$94,197.92	
Less for care, repairs, &c. $30,083.43		
" " Interest on Bonds 49,704.00	79,787.43	
		14,410.49
Interest on sundry temporary Loans to the City		4,152.20
Interest on Fund		1,641.74
		$59,266.62
Add accrued interest on Bonds to June 30, 1870 .		407.00
Actual value of the Fund, June 30, 1870 . . .		$59,673.62

The whole Fund is invested in Cambridge Water Bonds, excepting a temporary loan to the City of $342.22.

It will be seen that the Fund has been increased largely ($11,335.75) during the past year from the sales of land and pipe

in Somerville, and land and building on Broadway in this city. This is, of course, an extraordinary increase, which will not be likely to occur again. But it is a gratifying circumstance that the Fund has also been largely augmented from the regular sources of income. No less than $20,611.43 has been added during the year from sources which will probably continue to yield a similar or a still larger amount. The Fund is assuming proportions exceeding by far the anticipations entertained by the most sanguine at the time the Works were purchased by the City. At the present rate of accumulation, the amount which will be realized in less than twenty years will exceed $900,000. This will go far toward extinguishing the whole Water Debt, unless that Debt should be very much increased in the mean time. Some increase will, of course, be found necessary in order to pay the cost of extending the pipes, &c., but even if the total debt should ever reach the sum of $1,500,000 it will all be extinguished in less than thirty years from the present time; and the probabilities are that the Fund will amount to a million and a half of dollars in the course of twenty-five years.

Respectfully submitted.

H. R. HARDING,
JOSEPH H. CONVERSE,
JOS. WHITNEY,
Trustees of the Sinking Fund of Water Works.

CAMBRIDGE, *Dec.* 23, 1870.

REPORT

CONCERNING

THE ACCOUNTS OF THE TREASURER.

In Committee on Finance, *Dec.* 27, 1870.

The Sub-Committee appointed to examine the accounts of the City Treasurer for the financial year ending Nov. 30, 1870, have attended to the duty, and

REPORT:

That the accounts of the City Treasurer have been correctly kept, and that he has satisfactory vouchers for all payments made by him, according to the schedule herewith submitted, showing a balance in his hands of eighty-three thousand eight hundred fifty-seven dollars and fifty-seven cents ($83,857.57) on the first day of December, 1870.

Also, that there remain in the hands of the Treasurer two thousand dollars ($2,000) of the Cambridge Water-loan Bonds more than his account shows the City to be entitled to.

HORATIO G. PARKER,
SEYMOUR B. SNOW,
ISAAC BRADFORD,
JOHN WILSON,
F. M. MASON,
ROBERT L. SAWIN,
} *Sub-committee.*

SCHEDULE OF EXPENDITURES

FOR

THE FINANCIAL YEAR ENDING NOVEMBER 30, 1870.

For Instruction in Public Schools.

Salary of Superintendent		$2,541.67	
Salaries of Teachers		98,639.21	
			$101,180.88
Appropriation . . .	$98,000.00		
Additional Appropriation	3,180.88		
		$101,180.88	
Amount of Expenses		101,180.88	

For Scientific Department of High School.

Chemicals, &c.		$60.12
Appropriation	$100.00	
Amount of Expenses	60.12	
Balance unexpended	$39.88	

For Text-Books for High School.

Books		$33.43
Appropriation	$50.00	
Amount of Expenses	33.43	
Balance unexpended	$16.57	

For Evening Schools for Adults.

Instruction	$1,217.42	
Other Expenses	137.00	
		$1,354.42

Appropriation		$2,000.00
Amount of Expenses	$1,354.42	
Transferred . . .	645.58	
		$2,000.00

For Hopkins Fund.

Appropriation		$800.00
Transferred to "Instruction in Public Schools," towards salary of Classical Teacher in High School		800.00

For Compensation of Secretary of School Committee.

Secretary		$300.00
Appropriation	$300.00	
Amount of Expenses	300.00	

For Care and Repairs of School-Houses.

Rent of halls for school-rooms . . .	$525.00	
School furniture	4,495.55	
Fuel	6,382.02	
Care of houses, fires, &c.	4,424.58	
Mats, dusters, &c.	795.27	
Repairs and materials	6,396.26	
Furnaces and repairs	1,985.84	
Books and stationery	2,540.63	
Other Expenses	1,095.62	
		$28,640.77
Appropriation . .	$25,000.00	
Additional Appropriation	3,640.77	
		$28,640.77
Amount of Expenses	28,640.77	

For Ward-Room, Police Station, and Engine-House, Ward Three.

Land		$1,500.00
Contractor for building		8,000.00
Other Expenses		190.52
		$9,690.52

Appropriation	$15,000.00
Amount of Expenses	9,690.52
Balance unexpended	$5,309.48

For Repairs at City Hall.

Contractor for repairs	$3,519.00	
Painting, &c.	392.81	
Chandeliers	670.37	
		$4,582.18
Appropriation. . .	$5,000.00	
Amount of Expenses	4,582.18	
Balance unexpended	$417.82	

For New School-Houses and Alterations.

House and land on Hilliard Street . .	$7,185.05	
Land for house on Broadway . . .	8,382.80	
House on Niagara Street	7,500.00	
Alterations in Otis School-house . .	3,396.52	
Plans and specifications	390.00	
Printing	28.37	
		$26,882.74
Appropriation. . .	$45,000.00	
Amount of Expenses	26,882.74	
Balance unexpended	$18,117.26	

For Almshouse and Stone Ledge.

Salaries	$2,294.44	
Supplies for the house	6,272.53	
Dry goods, clothing, &c.	1,602.89	
Sundry laborers	9,539.00	
Fuel	1,253.76	
Hay, grain, and meal	1,769.63	
Tools, hardware, &c.	374.22	
Supplies to poor out of the house . .	6,552.98	
Support of persons in State institutions .	3,448.12	
Other Expenses.	6,287.95	
		$39,395.52

Appropriation . . .	$35,000.00	
Additional Appropriation	5,000.00	
		$40,000.00
Amount of Expenses		39,395.52
Balance unexpended		$604.48

For Police and Watch.

Chief of Police, salary		$1,500.00
Services of Policemen		38,622.00
Care of Police Court-room		91.67
Gas and fuel		394.49
Repairs		560.71
Supplies		30.58
Horse		175.00
Plans and specifications		250.00
Other Expenses		922.87
		$42,547.32
Appropriation . . .	$42,500.00	
Additional Appropriation	47.32	
		$42,547.32
Amount of Expenses		42,547.32

For Fire Department.

Chief Engineer, salary	$500.00
Assistant Engineers, salaries . . .	703.50
Clerk of Engineers, salary	25.00
Services of members	17,958.82
Fines of members	215.00
Steamer	4,000.00
Horses	300.00
Hay, grain, and meal	2,385.15
Repairs and materials	2,858.37
Harnesses and repairs	125.25
Hose and couplings	1,139.57
Use of water for hydrants	7,350.00
Fuel	411.86
Amount carried forward . .	$37,972.52

Amount brought forward . .		$37,972.52	
Expenses of fire alarm		289.42	
Other Expenses		3,333.46	
			$41,595.40
Appropriation . . .	$40,000.00		
Additional Appropriation	2,500.00		
		$42,500.00	
Amount of Expenses		41,595.40	
Balance unexpended		$904.60	

For Streets and Paving.

Amount paid for labor		$38,430.29	
Paving		65,376.95	
Gravel, stone, brick, and carting . .		36,123.36	
Horses		1,650.00	
Horse-shoeing and iron-work . . .		894.46	
Hay, grain, and meal		4,483.37	
Damages for widening		47,970.61	
Other Expenses		2,551.11	
			$197,480.15
Appropriation . .	$80,000.00		
Additional Appropriation	127,749.34		
		$207,749.34	
Amount of Expenses		197,480.15	
Balance unexpended		10,269.19	

For Reservoirs and Drains.

Contractors, for building sewers . .		$93,591.49	
Amount paid for labor		12,582.55	
Brick, stone, and drain-pipe		6,806.58	
Lumber, cement, and lime		746.57	
Other Expenses		1,524.38	
			$115,191.57

Appropriation . . .	$75,000.00	
Additional Appropriation	50,000.00	
		$125,000.00
Amount of Expenses		115,191.57
Balance unexpended		$9,808.43

For Care and Repairs of Bridges.

Care of draws		$1,417.33
Repairs and iron-work		4,334.25
Lumber		1,414.45
Repairs of Cambridge and Brookline Bridge		5,104.07
Other Expenses		729.90
		$13,000.00
Appropriation	$15,000.00	
Amount of Expenses	$13,000.00	
Transferred . . .	2,000.00	
	$15,000.000	

For Lighting Streets.

Superintendent of Lamps		$100.00
Gas		8,616.33
Fluid, matches, &c.		579.94
Care of lamps and lighting		3,119.50
Lanterns and repairs		804.80
		$13,220.57
Appropriation . .	$13,000.00	
Additional Appropriation	400.00	
	$13,400.00	
Amount of Expenses		13,220.57
Balance unexpended		$179.43

For Watering Streets.

Paid for watering		$3,500.00
Appropriation . .	$3,500.00	
Amount of Expenses	3,500.00	

For Salaries of City Officers.

Mayor	$1,500.00	
Treasurer and Collector	2,500.00	
City Clerk	2,000.00	
Auditor of Accounts	500.00	
Clerk of Common Council	150.00	
Board of Assessors	3,600.00	
Superintendent of Streets and Drains	1,500.00	
Messenger	1,000.00	
		$12,750.00
Appropriation	$15,000.00	
Amount of Expenses $12,750.00		
Transferred 2,250.00		
	$15,000.00	

For Cemeteries.

Superintendent, salary	$999.96	
Sundry workmen	7,355.14	
Land	1,302.50	
Well-house	356.27	
Other Expenses	999.09	
		$11,012.96
Appropriation $8,000.00		
Additional Appropriation 3,012.96		
	$11,012.96	
Amount of Expenses	11,012.96	

For Public Squares.

City Forester	$674.50	
Labor	1,516.50	
Grading Hastings Square	550.00	
Trees and sods	461.12	
Other Expenses	199.45	
		$3,401.57

Appropriation		$4,000.00	
Amount of Expenses	$3,401.57		
Transferred . . .	500.00		
		$3,901.57	
Balance unexpended		$98.43	

For Interest and Bank Discounts.

Cambridge City Bonds		$62,504.00	
Cambridge City Bonds (gold) . . .		7,500.00	
Lowell Institution for Savings . . .		2,330.00	
Trustees of Sanders Temperance Fund		600.00	
Trustees of Dowse Institute		600.00	
Trustees of Daniel White Charity . .		300.00	
Premium for gold		1,204.68	
Mortgage on City Wharf		210.00	
Sundry banks, &c., on temporary loans		16,187.58	
			$91,436.26
Appropriation . .	$90,000.00		
Additional Appropriation	1,436.26		
		$91,436.26	
Amount of Expenses		91,436.26	

For Dana Library.

Librarian, salary		$300.00	
Assistant-Librarian, salary		41.00	
Rent and care of room		375.00	
Books and stationery		705.91	
Bookcases		145.74	
Other Expenses		342.59	
			$1,910.24
Appropriation . . .	$2,932.90		
Amount of Expenses	1,910.24		
Balance unexpended	$1,022.66		

For Volunteers and their Families.

Amount paid to soldiers' families			$20,000.00
Appropriation		$20,000.00	
Amount of Expenses		20,000.00	

For Soldiers' Monument.

Contractors for Monument	$19,947.50	
Architect	750.00	
Stone base for fence	908.00	
Iron fence	1,150.00	
Temporary fence	239.40	
Labor	246.00	
Expenses of Dedication Day	5,594.93	
Publishing Soldiers' Memorial	680.78	
Monument in Burial Ground	500.00	
		$30,016.61
Appropriation	$25,000.00	
Additional Appropriation	5,016.61	
	$30,016.61	
Amount of Expenses	30,016.61	

For Telegraphic Fire Alarm.

Appropriation	$3,500.00
Balance unexpended	3,500.00

For Care and Repairs of Water Works.

Superintendent, salary	$604.17	
Water Registrar, salary	1,525.00	
Clerk of Water Board, salary	150.00	
Assistance in Office	1,222.98	
Engineer	983.34	
Foreman	175.00	
Sundry workmen	5,674.35	
Repairs and iron work	679.23	
Pipe, cement, and packing	496.24	
Fuel and freight	3,673.73	
Office rent, two years	1,200.00	
Other Expenses	2,630.39	
		$19,014.43
Appropriation	$20,000.00	
Amount of Expenses	19,014.43	
Balance unexpended	$985.57	

For Supply Account of Water Works.

Sundry workmen	$5,263.79	
Supplies	9,309.77	
Other Expenses	426.01	
		$14,999.57
Appropriation	$15,000.00	
Amount of Expenses	14,999.57	
Balance unexpended	.43	

For Extension of Water Works.

Foreman	$91.67	
Sundry workmen	15,500.21	
Pipes, freight, and wharfage	29,470.23	
Water-gates	2,100.80	
Hydrants and iron-work	4,804.77	
Lead	2,018.37	
Packing	278.99	
Lumber, cement, &c.	452.38	
Other Expenses	2,189.04	
		$56,906.46
Appropriation	$60,000.00	
Amount of Expenses	56,906.46	
Balance unexpended	$3,093.54	

For Sinking Fund of Water Works.

Amount paid Trustees of Fund		$25,746.24
Appropriation	$20,000.00	
Additional Appropriation	5,746.24	
	$25,746.24	
Amount of Expenses	25,746.24	

For Incidental Expenses.

Legal services and expenses	$1,502.24
Settlement of claims	6,511.10
Amount carried forward	$8,013.24

Amount brought forward		$8,013.24
Somerville tax-bill		369.20
Belmont tax-bill		118.75
Printing and advertising		3,387.15
Books and stationery		1,605.81
Revenue stamps and postage		453.16
Abstract for Assessors		362.41
Recording births, deaths, and marriages		578.20
Treasurer, for clerical assistance		419.00
City Clerk, for clerical assistance		1,000.00
Assessing drain taxes		50.00
Page of Common Council		50.00
Messenger, extra compensation		125.00
City Engineer, services		1,800.00
Assistants, services		3,170.00
Expenses of Engineer's office		656.62
Expenses at City Hall		1,520.60
Repairs at City Hall		1,458.81
Furniture for City Hall		3,763.54
Assistant Assessors, services		596.00
Services of Ward Officers		235.00
Rent and care of Ward-Rooms		115.06
Rent of armory		302.86
Co. C., Fifth Regiment, services		684.00
Railway tickets		360.00
Horse-hire		530.22
Land damages		1,096.80
Water for streets		2,592.00
Water for fire hydrants		540.00
Telegraphic fire-alarm		900.80
Drinking fountains		1,643.58
Expenses of Decoration Day		1,702.00
Funeral of Anson Burlingame		546.50
City wharf		2,500.00
Inspector of Milk, and Sealer		495.50
Other Expenses		2,926.35
		$46,668.26

Appropriation . . .	$35,000.00	
Additional Appropriation	13,465.20	
		$48,465.20
Amount of Expenses		46,668.26
Balance unexpended		$1,796.94

For Payment of City Debt.

Lowell Institution for Savings		$3,000.00
Appropriation	$3,000.00	
Amount of Expenses	3,000.00	

RECAPITULATION OF EXPENDITURES FOR THE FINANCIAL YEAR ENDING NOV. 30, 1870.

	Original Appropriation.	Added subsequently.	Subtracted subsequently.	Appropriations as altered.	Amount of Expenditures.	Balances Unexpended.
Instruction in Public Schools	$98,000.00	$3,180.88	. . . . .	$101,180.88	$101,180.88	. . . . .
Scientific Department of High School	100.00	. . . . .	. . . . .	100.00	60 12	$39.88
Text-Books for High School	50.00	. . . . .	. . . . .	50.00	33.43	16.57
Evening Schools for Adults	2,000 00	. . . . .	$645.58	1,354.42	1,354.42	. . . . .
Hopkins Fund *	800.00	. . . . .	800.00	. . . . .	. . . . .	. . . . .
Compensation of Secretary of School Committee	300.00	. . . . .	. . . . .	300.00	300.00	. . . . .
Care and Repairs of School-houses	25,000.00	3,640.77	. . . . .	28,640.77	28,640.77	. . . . .
Ward Room, Police Station, and Engine House, Ward Three	15,000.00	. . . . .	. . . . .	15,000.00	9,690.52	5,309.48
Repairs City Hall	5,000.00	. . . . .	. . . . .	5,000.00	4,582.18	417.82
New School-houses and Alterations	45,000 00	. . . . .	. . . . .	45,000.00	26,882.74	18,117.26
Almshouse and Stone Ledge	35,000.00	5,000.00	. . . . .	40,000 00	39,395.52	604.48
Police and Watch	42,500.00	47.32	. . . . .	42,547.32	42,547.32	. . . . .
Fire Department	40,000.00	2,500.00	. . . . .	42,500.00	41,595.40	904.60
Streets and Paving	80,000.00	127,749.34	. . . . .	207,749.34	197,480.15	10,269.19
Reservoirs and Drains †	75,000.00	50,000 00	. . . . .	125,000.00	115,191.57	9,808.43
Care and Repairs of Bridges	15,000.00	. . . . .	2,000.00	13,000.00	13,000.00	. . . . .
Lighting Streets	13,000.00	400.00	. . . . .	13,400 00	13,220.57	179.43
Watering Streets	3,500 00	. . . . .	. . . . .	3,500.00	3,500.00	. . . . .
Salaries of City Officers	15,000.00	. . . . .	2,250.00	12,750.00	12,750.00	. . . . .
Cemeteries	8,000.00	3,012.96	. . . . .	11,012.96	11,012.96	. . . . .
Public Squares	4,000.00	. . . . .	500.00	3,500.00	3,401.57	98.43
Interest and Bank Discounts	90,000.00	1,436.26	. . . . .	91,436 26	91,436.26	. . . . .
Dana Library	2,932.90	. . . . .	. . . . .	2,932.90	1,910.24	1,022.66
Volunteers and their Families	20,000.00	. . . . .	. . . . .	20,000.00	20,000.00	. . . . .
Soldiers' Monument	25,000.00	5,016.61	. . . . .	30,016.61	30,016.61	. . . . .
Telegraphic Fire Alarm	3,500.00	. . . . .	. . . . .	3,500.00	. . . . .	3,500 00
Care and Repairs of Water Works	20,000.00	. . . . .	. . . . .	20,000 00	19,014.43	985.57
Supply Account of Water Works	15,000.00	. . . . .	. . . . .	15,000.00	14,999.57	.43
Extension of Water Works	60,000.00	. . . . .	. . . . .	60,000.00	56,906.46	3,093.54
Sinking Fund of Water Works	20,000.00	5,746.24	. . . . .	25,746.24	25,746.24	. . . . .
Incidental Expenses	35,000.00	13,465.20	. . . . .	48,465.20	46.668.24	1,796.94
Payment of City Debt	3,000.00	. . . . .	. . . . .	3,000.00	3,000.00	. . . . .
Amount of Appropriations	$816,682.90	. . . . .	. . . .	$1,031,682 90	$975,518.19	$56,164.71
Amount of Expenditures	. . . . .	. . . . .	. . . . .	975,518.19		
Balances unexpended	. . . . .	. . . . .	. . . . .	$56,164.71		

* This appropriation was transferred to Instruction in Public Schools.

† $50,000 were added to this appropriation, and the creation of a City Debt therefor was authorized. For the further sum of $165,000, added to the original appropriations, a City Debt was created.

Dr. JOSEPH WHITNEY, TREASURER,

1869. Dec. 1.	Balance on hand	$63,338.06
	State of Massachusetts, State Aid	23,618.50
	Corporation Tax	18,625.10
	Armory Rents	100.00
	Quarter-Master's Supplies	960.00
	Militia Bounty	67.50
	" " 1869	700 50
	Military Accounts	111.20
	Water Pipe sold to the Town of Somerville	4,753.01
	Land in Somerville, sold	5,037.85
	" " "	344.89
	County of Middlesex, for land damages in Somerville	500.00
	Land, corner Main and Dock Streets, sold	2,557.75
	No. Six Engine House	420.00
	Gas at No. 5 Ward Room	3.94
	State of Massachusetts School Fund	1,307.83
	Rent of Police Court Room	350.00
	Police Court, Fines, Costs, &c.	3,572.89
	County of Middlesex, Dog Licenses, refunded	1,932.90
	Rent of Engine House No. 6	78.50
	Fitchburg Railroad Co., contribution for the Widening of North Avenue Bridge	765.00
	Rent of Water Office and Work Shop	1,200.00
	Old Curtains sold	6.00
	J. S. Sawyer, for rent of Lot	20.00
	Trustees Hopkins Charity Fund	894.38
	Accrued interest on note negotiated by Messrs. Brewster, Sweet, & Co.	27.08
	Filling Water Cistern, Pumping out Sand Pit and Gasometer	190.00
	Auctioneers' Licenses	14.00
	Circus "	30.00
	Damage to Street Lamps, &c.	11.05
	Town of Waltham, use of Engine	28.00
	Cambridge Cemetery, of J. K. Farwell, Superintendent	5,933.25
	Weighing Fees	608.35
	Taxes of 1870	535,255.36
	" 1869	32,084.52
	" 1868	2,774.20
	" 1867	52.98
	Paving Assessments	19,758.98
	Drain "	10,010.10
	Bank Tax of Sundry Non-resident owners of Bank Stock	1,080.02
	Interest on Taxes	1,204.29
	Street Offal, &c., sold	1,228.87
	Dana Library, Fines and Subscriptions	300.45
	Accrued interest on Bonds sold	644.83
	Cambridge Water Works	109,498.96
	" Almshouse	17,652.26
	Rent of City Hall	36.00
	Temporary Loan	442,809.75
	Permanent "	274,479.30
	Pumping out Cellar	12.00
		$1,586,990.40

CAMBRIDGE, *Nov.* 30, 1870.

IN ACCOUNT WITH THE CITY OF CAMBRIDGE. Cr.

1869. Dec. 1.	State Tax	$63,025.00
	County Tax	25,657.50
	Interest Temporary Loan	16,187.58
	" Permanent "	73,338.99
	Temporary Loan	442,809.75
	Bank Tax	622.22
	Sundry persons per Mayor's Drafts and Orders	881,491.79
	Balance on hand	83,857.57
		$1,586,990.40

JOSEPH WHITNEY, *Treasurer.*

ACCOUNT OF CITY DEBT, DEC. 1, 1870.

Date.	Rate.	To whom Payable.	Amount.	Total.	When Payable.	Interest Paid to
Nov. 6, 1850.	5½	Lowell Institution for Savings	$3,000.00		Nov. 6, 1870.	May 6, 1870.
Jan. 23, 1851.	5½	Do. do. do.	8,000.00		Jan. 23, 1871.	July 23, 1870.
April 6, 1857.	5¾	Do. do. do.	30,000.00		April 6, 1877.	Oct. 6, 1870.
July 1, 1858.	5	Cambridge City Bonds	7,000.00		July 1, 1878.	July 1, 1870.
July 1, 1859.	5	Do. do. do.	15,000.00		July 1, 1879.	July 1, 1870.
July 1, 1862.	5	Do. do. do.	20,000.00		July 1, 1882.	July 1, 1870.
Aug. 1, 1862.	5	Do. do. do.	30,000.00		Aug. 1, 1882.	Aug. 1, 1870.
Sept. 10, 1862.	5	Do. do. do.	40,000.00		Sept. 10, 1882.	Sept. 10, 1870.
Sept. 10, 1862.	5	Do. do. do.	30,000.00		Sept. 10, 1877.	Sept. 10, 1870.
Nov. 20, 1862.	5	Do. do. do.	14,000.00		Nov. 20, 1882.	Nov. 20, 1870.
March 5, 1863.	5	Do. do. do.	150,000.00		Jan. 1, 1893.	Sept. 5, 1870.
April 1, 1864.	5	Do. do. do.	100,000.00		April 1, 1889.	Oct. 1, 1870.
Aug. 1, 1866.	6	Joshua S. Bosworth	3,500.00		Aug. 1, 1871.	Aug. 1, 1870.
Aug. 1, 1866.	6	H. E. Bosworth	1,750.00		Aug. 1, 1871.	Aug. 1, 1870.
Aug. 1, 1866.	6	H. M. Bosworth	1,750.00		Aug. 1, 1871.	Aug. 1, 1870.
Aug. 13, 1870	6½	Order of City Treasurer	10,000.00		Oct. 13, 1871.	
Aug. 13, 1870.	6½	Do. do. do.	10,000.00		Oct. 13, 1871.	
Aug. 13, 1870.	6½	Do. do. do.	10,000.00		Oct. 13, 1871.	
Aug. 13, 1870.	6½	Do. do. do.	10,000.00		Oct. 13, 1871.	
Aug. 13, 1870.	6½	Do. do. do.	10,000.00		Oct. 13, 1871.	
Nov. 7, 1870.	7	Do. do. do.	10,000.00		Oct. 7, 1871.	
Nov. 7, 1870.	7	Do. do. do.	15,000.00		Oct. 7, 1871.	
Nov. 7, 1870.	7	Do. do. do.	20,000.00		Oct. 7, 1871.	
Nov. 14, 1870.	7	Do. do. do.	5,000.00		Oct. 7, 1872.	
Nov. 22, 1870.	7	Do. do. do.	40,000.00		Oct. 7, 1872.	
Nov. 25, 1870.	7	Do. do. do.	25,000.00		Oct. 7, 1872.	
Nov. 29, 1870.	7	Do. do. do.	30,000.00		Oct. 7, 1872.	
July 1, 1870.	6	Cambridge City Bonds	20,000.00		July 1, 1890.	
				$669,000.00		
July 1, 1856.	6	Cambridge Water Loan	50,000.00		July 1, 1881.	July 1, 1870.
May 1, 1865.	6	Do. do. do.	186,400.00		May 1, 1875.	Nov. 1, 1870.
Aug. 1, 1865	6	Do. do. do.	55,000.00		Aug. 1, 1883.	Aug. 1, 1870.
July 2, 1866.	6	Do. do. do.	100,000.00		July 2, 1886.	July 1, 1870.
April 1, 1867.	6	Do. do. do.	150,000.00		April 1, 1888.	Oct. 1, 1870.
April 1, 1868.	6	Do. do. do.	175,000.00		April 1, 1888.	Oct. 1, 1870.
May 1, 1869.	6	Do. do. do.	112,000.00		May 1, 1875.	Nov. 1, 1870.
July 1, 1870.	6	Do. do. do.	60,000.00		July 1, 1890.	
				888,400.00		
Oct. 1, 1863.	6	Trustees of Daniel White Charity	5,000.00		On demand.	Oct. 1, 1870.
June 1, 1858.	6	Trustees of Dowse Institute Fund	10,000.00			June 1, 1870.
Oct. 8, 1864.	6	Trustees of Sanders Temperance Fund	10,000.00			Oct. 8, 1870.
				25,000.00		
		State Tax	63,025.00		Dec. 1, 1870.	
		County Tax	25,647.40		Dec. 31, 1870.	
				88,672.40		
				$1,671,072.40		

REPORT

OF THE

COMMITTEE ON SOLDIERS AND THEIR FAMILIES.

The Joint Committee on Soldiers and their Families submits to the City Council its Report for the year ending Nov. 30, 1870.

The whole number of cases in which aid has been granted during the year 1870 has been 278. The number now on the list is 267.

The appropriation for Volunteers and their Families was	$20,000.00
The amount paid from said appropriation to Nov. 30, as appears by the books of the Auditor, was	20,000.00

The payments of State Aid, as returned to the Auditor of the Commonwealth, are for the year ending Dec. 31, 1870, and amount to $20,379.75, of which sum $20,063.75 will be reimbursed to the City by the State.

The monthly payments now amount to about $1,500, and an appropriation of $20,000 will be sufficient for the ensuing year.

All which is respectfully submitted.

AMOS C. SANBORN,
J. W. COVENEY,
F. M. MASON,
SEYMOUR B. SNOW,
} *Committee on Soldiers and their Families.*

Cambridge, *Dec.* 28, 1870.

REPORT

OF THE

COMMITTEE ON THE SOLDIERS' MONUMENT.

The Joint Special Committee, appointed by the City Council to erect a Monument in honor of the deceased soldiers and sailors of Cambridge, beg leave to submit their final

REPORT.

A similar Committee, appointed last year, took the initiatory steps for the building of a Monument, according to the design furnished by Messrs. C. & D. Cobb, which had been adopted by the City Council. The foundation was completed, and the corner-stone laid, on the 17th of June, 1869. The contract for the Monument above the foundation was awarded to Messrs. McDonald & Mann, the price to be $20,500. A contract was also made with Messrs. C. & D. Cobb for a granite statue of a soldier, for the bas-reliefs, for nine bronze tablets containing the names of the deceased soldiers and sailors, and a dedicatory inscription. The contract price for these was $4,500. The Monument, by the terms of these contracts, was to be set up complete on or before Nov. 1, 1869. The contractors, notwithstanding the exercise of the utmost diligence on their part, were unable to finish the work last year, and the contracts were extended by the City Council until June 15th, 1870. During the winter of 1869–70 the stone required for the Monument was prepared on the premises of McDonald & Mann, the statue was cut, and work proceeded on the tablets. As soon as the state of the weather would permit in the spring of 1870, the work of setting up the Monument commenced. This was continued without accident or intermission, until the structure was fully completed, which was not until about the tenth day of July.

On the thirteenth day of July the Monument was formally dedicated. A procession was formed in the Third Ward, which

marched through the principal streets to the Common, where, under a spacious tent, the dedicatory exercises were held. Brief allusion, only, is here made to the ceremonies of this day, inasmuch as the City Council has caused a full account of all the doings to be published, for distribution among the citizens.

Since the erection of the Monument, the grounds in its vicinity have been graded and sodded, paths laid out and gravelled, and shade trees planted. An iron fence of very handsome design, resting on a stone base, has been built for the protection as well as for an additional ornament to the structure. The granite of which the Monument is built is of an excellent quality, and very pleasing to the eye. It is believed that, taken as a whole, the entire work is creditable to the city, and is a suitable memorial of the men whose deeds it is intended to commemorate.

The expenditures on the Monument have been as follows;

IN 1869.

Paid contractors	$5,000.00	
" on statue	1,000.00	
" architect	575.00	
" for designs	300.00	
" for making rolls of soldiers	400.00	
" foundation for Monument	2,564.73	
" sundry expenses	306.14	
		$10,145.87

IN 1870.

Paid McDonald & Mann	$19,860.02	
" Munroe (per order Messrs. Cobb)	87.48	
" architect	750.00	
" for temporary fence while building	239.40	
" " iron fence	1,150.00	
" " base for do.	908.00	
" " labor (grading, &c.)	345.75	
" " expenses of dedication	5,594.93	
" " publishing books	680.78	
		29,616.36
Total cost of Monument to Nov. 30, 1870		$39,762.23

The original intention of the City Council was to erect a Monument, the total cost of which should not exceed $25,000; but, owing to various causes, this estimate has been exceeded to the amount of $14,762.23.

Your Committee deem it proper to say that, in their opinion, the work has been performed in strict accordance with the designs and specifications; was finished as soon as was practicable; and is of a satisfactory character.

This Committee was instructed, several months since, to erect a suitable Memorial Stone, in the burial ground in Ward One, in honor of the men of Cambridge who were killed in the first battle of the Revolution. They selected a plain shaft of Scotch granite, which was placed on the spot where the patriots lie buried. It was dedicated with appropriate services on the third day of November last, when an address was delivered by Rev. Alex. McKenzie. The proceedings of that day have also been published in pamphlet form by order of the City Council. The total cost of this Stone was $500.

Respectfully submitted.

H. R. HARDING,

For the Committee.

CAMBRIDGE, *Dec.* 28, 1870.

REPORT

OF THE

COMMISSIONERS OF THE CAMBRIDGE CEMETERY.

In conformity with the statutes of the Commonwealth, the Commissioners of the Cambridge Cemetery herewith submit to the City Council their Sixteenth Annual Report, for the financial year ending Nov. 30, 1870.

During the year the grounds have been kept in excellent order; but, for a portion of the time, in consequence of the extreme heat and drought of the summer, they have not presented their usual attractive appearance. Irrigation has been freely used, and considerable expense has thereby accrued; but artificial means, although operating in mitigation of the effects of drought, cannot wholly prevent them.

The improvements made in the grounds have not been of a striking character, but have each added something to the beauty of the place, and have, doubtless, operated as inducements to purchasers of lots. The most noticeable of these improvements is that made in the appearance of the south-westerly face of the elevated ground in the central portion of the Cemetery. This, being naturally rough and uneven, presented an aspect not altogether pleasing; but, by the expenditure upon it of much labor and material, it has been brought to a condition much more agreeable to the eye. Another addition consists in the erection of a new well-house and pump, thus, at once, supplying a great want and furnishing an ornament to the grounds.

The demand for lots during the past year has not been as great as in 1869, the whole number disposed of being sixty-two for the last twelve months, while sixty-nine were sold during the same period in 1869. Many of the lots sold this year were of small size, and bringing a correspondingly low price. As the Cemetery increases in attractiveness, the demand for lots will undoubtedly

increase also. We see no reason why our grounds should not secure their full share of purchasers, in the future.

The last Report of the Commissioners made allusion to the fact that more land would, before the lapse of many years, be required for the enlargement of the Cemetery. Nothing has been done in this direction during the present year, excepting the purchase from the Trustees of the Mount Auburn Cemetery of a parcel of land on our northerly side. This contains 10,420 square feet, and is quite an improvement to the grounds, straightening the line and affording a convenient means of access to a large number of lots which are now much sought after, and which will soon be all disposed of.

The number of interments this year has been three hundred and forty-four (being three less than last year), making the whole number since the dedication of the Cemetery, in 1854, to be six thousand eight hundred and twelve.

The expenditures of the year have been as follows; namely: —

Superintendent's salary	$1,000.00	
Sundry workmen	7,355.14	
Use of horse	250.00	
Sundry other expenses	749.05	
New well-house and pump	356.27	
Land purchased	1,302.50	
Total		$11,012.96

The receipts have been as follows; namely: —

For burial lots	$4,197.75	
" care of lots	798.50	
" grave-markers	20.00	
" wood	86.00	
" hay and sedge grass	102.00	
" burial-fees	729.00	
		$5,933.25

The total appropriation for the year was	$11,012.96
The total expenditure was	11,012.96

Excess of expenditures over receipts in 1870 . . .	$5,079.71
" " " " " 1869 . . .	7,930.00

The number of lots now prepared and ready for sale is ninety-seven. Value of the same, $11,455.

It will be seen by a comparison of the receipts and expenditures for 1869 and 1870 that the former have decreased the present year $1,346.17, and the latter $1,996.75. Last year there was expended for the new Stone Lodge, and for marble head-stones in the Soldiers' Lot, the sum of $3,353.30, which caused the expenditures of that year to largely exceed the receipts. This year the only extraordinary expenditure has been that of $1,302.50 for land. Deducting this, the excess of expenditures over receipts is only $3,777.21, which we consider a very favorable exhibit. The falling off in the receipts from the sale of lots may in part be attributable to the good condition of the public health. In this view almost any amount of diminution of the receipts would be gratifying. The number of lots prepared and ready for sale is seventeen greater than at the close of the year 1869. This would seem to render unnecessary the employment of as large a force of laborers in 1871 as were employed during the present year. In this way a considerable saving may be effected. If an appropriation of $8,000 should be made by the next City Council, we think it would be quite sufficient for the purpose.

We have every reason to be satisfied with the services of the Superintendent. We have found him invariably courteous, accommodating, and faithful. His management has been judicious and tasteful; and no pains seem to have been spared on his part to meet the requirements of the Commissioners or the public.

H. R. HARDING,
Z. L. RAYMOND,
JOHN C. FARNHAM,
JOHN M. TYLER,
C. M. HOVEY,
DAN'L U. CHAMBERLIN,
GEO. S. SAUNDERS,

Commissioners of the Cambridge Cemetery.

CAMBRIDGE, *Dec.* 23, 1870.

REPORT

OF THE

BOARD OF OVERSEERS OF THE POOR.

The Overseers of the Poor respectfully submit their Annual Report to the City Council, for the financial year ending Nov. 30, 1870.

The Appropriation made by the City Council at the beginning of the year was	$35,000.00	
Additional Appropriation	5,000.00	
Total		$40,000.00
Whole amount expended for the year		39,395.52
Balance unexpended		$604.48

The receipts have been as follows; namely: —

From products of the Farm	$3,720.17	
From Piggery, from sale of hogs and pigs	3,207.25	
From Ledge, for stone	9,016.79	
From the State, cities, and towns	1,519.87	
From sundry sources	188.18	
		$17,652.26
Amount now due from cities and towns	3 00.00	
Amount now due from State	450.00	
For stone delivered sundry persons	5,369.15	
		6,119.15
		$23,771.41

RECAPITULATION.

Total Appropriation for the year		$40,000.00
Balance unexpended	$604.48	
Receipts from all sources	17,652.26	
Amount due, as above	6,119.15	
		24,375.89

Actual expense over income for the year .	$15,624.11
Expense over income in 1869	12,428.57
Being an increase over previous year of . .	$3,195.54
Amount of assistance rendered by the Overseers outside the house during the year	$3,646.00
Value of personal property, 1870	25,530.06
Value of personal property, 1869	23,200.40
Increase for 1870	$2,329.66

It will be noticed that the net expenses have increased to the amount of $3,195.54 over those of 1869, but the personal property has increased in value to the amount of $2,329.66. If there had been no increase in the personal property, the net increase in the expenses would have been only $865.88. This would have been covered three or four times over by the receipts from the products of the Farm, had it not been for the extraordinary drought which destroyed a large proportion of the crops.

The average number of persons supported in the Almshouse during the year was seventy-five. Last year the average number was sixty-six. The net expense of the Institution, after deducting the amount paid for outside assistance, and the amount paid to Hospitals, Asylums, Reform School, &c., was $8,522.54, or about $113.63 for each pauper supported in the house. This gives less than $2.20 as the entire net cost per week of providing food, shelter, clothing, medical assistance, and all other things for each individual supported. If it is thought right to add to this the interest upon the value of the farm and buildings, it will still be found that the total cost per week of supporting each person is less than $3.00 per week. Comment has sometimes been made upon what has been called the enormous expense of the Almshouse, and it has even been asserted that our paupers could be boarded at first-class hotels at a less rate than it had cost the city to provide for them. The undersigned respectfully suggest that there are few hotels of any class where persons can be boarded for $2.20 or $3.00 per week, much less be furnished with clothing,

medical assistance, and other things of necessity and comfort. The misapprehension which has arisen on this point comes probably from the fact that a large sum — say $40,000 — is appropriated for the Almshouse each year, while no notice is taken of the receipts from that Institution, or of the very large amount paid for outside relief, and to Hospitals, Asylums, &c., for the care of paupers who are *not* inmates of the Almshouse, and who are never included in the number of persons reported as being supported there. This year the number of families assisted outside the house has been larger than usual. The general stagnation of business and the total failure of the ice crop last winter account in a great measure for this. Another reason, to which we cannot close our eyes, exists in the too frequent changes made in the composition of this Board. Experience is particularly valuable here. New men are constantly liable to be imposed upon by the plausible tales of sturdy beggars, who will do any thing rather than work for a living.

The school at the Almshouse continues under the excellent management of Mrs. Rand. The pupils are apparently making good progress in their studies, and the best of order is preserved. Religious services are held, and Sabbath-school instruction is given, each Sabbath.

The Board wish to express their entire confidence in the management of the Institution by Mr. and Mrs. Averill. By the maintenance of firm discipline, blended with kindness, they seem to have gained the affection of the inmates, and their ready obedience to all needful rules and regulations. The Farm and Ledge have been well conducted, and continue to be sources of profit to the city. Before the lapse of many years the present Ledge will have become exhausted; and we would respectfully suggest to the City Council the expediency of purchasing several acres of adjoining territory, which, it is understood, can now be obtained at a reasonable price. It is a matter deserving, in our opinion, of the most careful consideration.

The greatest improvement at the Almshouse this year has consisted in the introduction of Fresh Pond water. This was done not a moment too soon. Last year water had to be carted long

distances to supply the wants of the establishment. This year the quantity of rain has been so small, that it would only have been at enormous expense of time and labor that a sufficient supply of water could have been obtained. The water is now carried over the whole building, wherever needed, and is supplied to the swine and other animals. The Board are much gratified with the result of their application to the City Council for the extension of the water-pipes to the house and grounds; believing, as they do, that the cost has borne no proportion to the benefits derived at present, and to be derived in the future. During the past year a drain has been constructed in the north-westerly part of the Farm, which will bring the land through which it passes into good condition for the production of a large and valuable crop of grass. The boundary wall fronting on Broadway, Somerville, had become dilapidated and useless. The stone was sold; and a substantial fence, 5 feet 4 inches high and about 700 feet in length, has been erected for the purpose of excluding trespassers — both men and beasts — from the Farm. The barns, sheds, and workshops have all been newly shingled, in whole or in part. Other minor improvements have been made, which need no particular mention here.

We have endeavored to administer the charities of the city in a way which would not inflict upon the sensitive poor any thing like a feeling that there is disgrace in poverty; nor have we forgotten that we were bound to exercise our powers carefully and economically, giving to each case that has been brought to our notice the thoughtful attention and strict investigation which our duty to the public imperatively demanded.

H. R. HARDING,
SAMUEL C. KNIGHTS,
J. H. RICE,
WM. BRINE,
BENJ. F. WYETH,
LEWIS B. GUYER,
CHAS. R. PATCH,

Overseers of the Poor of Cambridge.

CAMBRIDGE, *Dec.* 23, 1870.

REPORT

OF

JAMES R. MORSE, M.D.,

VISITING PHYSICIAN.

To the Overseers of the Poor of the City of Cambridge:—

GENTLEMEN, — In submitting, for your consideration, my Annual Report of the sickness at the Almshouse, and the services rendered for the relief of the same, you will allow me to congratulate you and the citizens of Cambridge upon the unusual healthfulness of the inmates of this Institution during the year now closing. There has been the usual variety of acute diseases at the house during the year, all of which yielded readily to medical treatment. Also, as is usually true of similar institutions, there has been a large number of chronic cases, many of which required considerable care and medical attention, for the relief of suffering attendant upon broken constitutions, arising from severe sickness or the long-continued indulgence in habits which poison the physical and degrade the moral qualities of the being; but the number of those who have required my services has been less during the past year than usual; and it seems safe to assume that the greatly improved condition of the house in its ventilation, and its increased facilities for frequent ablution, have contributed largely to the improved healthfulness of the inmates.

Of the whole number of those that have come under my care (at the house) during the year, seven have died from disease and old age, as follows: two from apoplexy, two from old age, one from cholera infantum, one from marasmus, and one from long-continued asthma with dropsical effusion.

One case of scarlet fever was treated at the hospital for contagious diseases; but fortunately it did not spread among the children of the Institution.

Three cases of confinement have occurred at the house during the year; also, one was received immediately after confinement. All of them did well, being kindly cared for by the faithful Matron and her assistants. Two foundlings were sent here during the year: one of them, when received, was in a state of extreme exhaustion and debility, from which, in a few days, it was relieved by death; the other for a time seemed to thrive well, but after the lapse of a few weeks it was attacked with cholera infantum, and died in twenty-four hours. I have visited persons out of the house, to learn their condition and to advise in reference to their comfort and welfare, whenever requested so to do by any member of your Board. I have visited the house regularly every alternate day, and every day while treating cases of active disease.

It affords me great pleasure, in closing this brief Report, to express my gratitude to those with whom I have been associated in the care of the feeble and suffering inmates; for it has ever been my good fortune to find, in those who have had the care of this Institution, hearts warm with sympathy for those who were suffering and sad; heads willing and able to devise the best methods for the relief of the sick and sorrowing, lighting with hope the path which had been made dark by contact with the unfriendly side of life; and hands willing to perform those deeds of kindness which must make the feeble ones in life's decline feel that they go not down the dark valley alone, but are cheered by the smile of a true friendship along the weary way.

Also, for your continued expressions of confidence in and friendship toward me, gentlemen, please accept my warmest thanks.

Respectfully submitted.

J. R. MORSE.

REPORT

OF THE

CHIEF ENGINEER OF THE FIRE DEPARTMENT.

CHIEF ENGINEER'S OFFICE, FIRE DEPARTMENT,
CAMBRIDGE, *Dec.* 18, 1870.

To the Honorable Mayor and City Council:—

GENTLEMEN, — My Thirteenth Annual Report upon the condition of the Fire Department is herewith presented, containing rolls of the several companies, a schedule of the fire apparatus in their charge, a list of the location of reservoirs and hydrants, together with a detailed statement relative to the fires and alarms which have occurred during the year ending this date.

The roll of the Department at the present time numbers one hundred and five members, and comprises a Chief Engineer and four Assistants, four Steamer Companies, one Hand-Engine Company, one Hook-and-Ladder Company, one Relief Engineer, one Telegrapher, and two Fire Policemen.

Forty-seven persons have been appointed, and forty-eight discharged, — which gives a fair average membership during the year. Twelve vacancies now exist, ten of which are in the Hand-Engine Company.

Three persons were appointed as Fire Policemen, early in the year; but only two have served. These officers are, for a well-organized Fire Department, very essential, and render material aid to the Engineers in the protection of property and providing room for the operations of the firemen. I would therefore recommend that one from each ward be appointed, and their compensation increased and fixed by ordinance.

Forty-six alarms have occurred during the year, thirty-three of which were for fires in the city, four from out of the city, and

nine from other causes. Rendered assistance out of city six times, received assistance once. Of the forty-two alarms originating within the city, seven were given from East Cambridge, twenty-three from the Port, eight from Old Cambridge, and four from North Cambridge. Engines were used at eighteen fires, only one of which required the services of the entire Department.

Of the thirty-three fires within the City, three were in East Cambridge, twenty in the Port, six in Old Cambridge, and four in North Cambridge.

This exhibit is not only a confirmation of the opinion expressed in my last Report, that the location of a steamer at Atwood's Corner should not be longer delayed, but also corroborates the opinion of the Committee on Fire Department, as stated in their reports to the City Council during the past year, in favor of the same.

The loss for the year amounts to $40,750. Insurance on the same $27,750, leaving a total loss of $13,000.

Twenty-two of the Fire Alarm Telegraph boxes have been used in giving signals; and to their successful operation, and the ready response of the firemen, may be attributed the favorable result of the labors of the Department during one of the most critical periods for fires ever known in this section of the country.

Forty-eight Hydrants have been put in this year, thereby affording increased facilities for obtaining water, in point of locations; but the pressure is being gradually diminished by the additional number of consumers, and the friction in its passage through the small pipes which were formerly laid. I trust that measures will be adopted to increase the water pressure to that extent that some of the steamers may be displaced by hose-carriages.

The fire apparatus is in good condition, except that a small quantity of hose will be required this winter to replenish with.

The buildings of the Department are in good condition, with the exception of the stable used by Steamer Company No. Five, which is an old wooden structure with thin walls, without cellar, and too cold for horses having as little exercise as do those of the Fire Department. There is also on the premises, within a few feet of the stable, an old building used only for storage, and in the

rear of both are two large wooden buildings connected with the carriage factory of the Messrs. Henderson, which add to the liability from fire. I would therefore respectfully recommend that a suitable brick stable be substituted for the one referred to.

The Department maintains its rank for good discipline and order, though I regret that it has been necessary to discharge several members for neglect of duty. With these exceptions, the Department has been prompt and efficient; and I trust its officers and members have performed their respective duties in a manner which has met the unreserved approval of your Honorable Body.

Respectfully submitted.

GEORGE B. EATON,

Chief Engineer.

BOARD OF ENGINEERS.

Chief Engineer.

George B. Eaton,	Columbia, cor. Washington Street.

Assistant Engineers.

Thomas J. Casey,	Cambridge, near Sixth Street.
Joseph H. Marvin,	Pearl Street. (Sec. of Board.)
Patrick H. Raymond,	Jay Street.
Edward F. Belcher,	Eliot Street.

Cambridge Steam Fire Engine Company, No. 1.

House on Church Street, Ward I.

John Kinnear,	*Foreman.*
Peter J. Thorogood,	*Assistant Foreman.*
Edward E. Priest,	*Engineer.*
David Campbell,	*Fireman.*
Hiram W. Hooker,	*Driver.*
F. B. Pullen,	*Driver of Hose Carriage.*

Hosemen.

C. B. Shaw,	Geo. J. Blaisdell,
Geo. O. Rollins,	Thomas W. Jones,
James Danforth,	Charles Burnett,
James G. Brennan,	William H. Emery.

Condition of House and Apparatus.

House, Engine with all the equipments, 24 feet of Suction Hose, 3 Horses, 3 Harnesses, Horse Hose Carriage, 900 feet double-

riveted Leather Hose $2\frac{1}{2}$ inch, 50 feet 6-ply Rubber, 2 Pipes, 4 Buckets, 1 Axe, 2 Blunderbusses, in good condition; 250 feet $2\frac{1}{2}$ Leather Hose, 150 feet Rubber,. ordinary.

Engine built by the Amoskeag Manufacturing Company, Manchester, N.H., and put in service Sept. 18, 1864.

Steamers Nos. 1, 2, and 3, are of one pattern and of the second class, have one steam cylinder, $8\frac{1}{2}$ inches in diameter, one double-acting vertical plunger pump of $4\frac{3}{4}$ inches in diameter, with 12-inch stroke.

They will discharge 400 gallons of water per minute, if required; will throw two $\frac{7}{8}$-inch streams 210 feet each, or one $1\frac{1}{8}$-inch stream 250 feet. Two copper tanks are attached containing fresh water, with which to furnish the boiler when using salt water upon a fire. With fuel and water, as run to fires, weight about 6000 pounds. The Horse Hose Carriages, which accompany the Engines, were built by Messrs. Hunneman & Co., of Roxbury. They are two-wheeled, and capable of carrying 900 feet of hose; weight, as run to fires, 1600 pounds.

An Engineer, Driver of Steamer, and Driver of Hose Carriage are permanently employed. These, together with a Fireman and ten Hosemen, constitute the entire company of a Steamer. Sleeping accommodations are furnished for one member in addition to those permanently employed.

Union Steam Fire Engine Company, No. 2.

House on Main, near Winsor Street, Ward IV.

William Cade,	*Foreman.*
Charles A. Paine,	*Assistant Foreman.*
William Nicholson,	*Engineer.*
Nathan Hutchinson,	*Fireman.*
John Walker,	*Driver.*
Joseph Cartwright,	*Driver of Hose Carriage.*

Hosemen.

Daniel McCarty,
Charles Snow,
Jesse Haley,
William Foss,
Amos Jarvis,
Richard H. Marvin,
Arthur C. Day.

Condition of House and Apparatus.

House, Engine with all the equipments, 34 feet of Suction Hose, 3 Horses, 4 Harnesses, Horse Hose Carriage, 800 feet $2\frac{1}{2}$-inch double-riveted Leather Hose, 150 feet Rubber, 2 Pipes, 3 Buckets, 1 Axe, 2 Blunderbusses, in good condition; 800 feet $2\frac{1}{2}$ Leather, 100 Rubber, ordinary.

Engine built by Amoskeag Manufacturing Company, Manchester, N.H.; put in service Aug. 1, 1863.

Fuel Wagon housed on Cherry Street, near Main.

Niagara Steam Fire Engine Company, No. 3.

House on Cambridge, near Third Street, Ward III.

William F. Newman,	*Foreman.*
Cornelius J. Donovan,	*Assistant Foreman.*
Hiram Blood,	*Engineer.*
John D. DeRonde,	*Fireman.*
James S. Casey,	*Driver.*
Lorenzo Dale,	*Driver of Hose Carriage.*

Hosemen.

Charles Berry,
William Durgin,
Daniel Donahue,
Michael Collins,
Alexander Atkins,
Thomas J. Dale,
Francis P. Carr.

Condition of Apparatus.

New House, nearly ready to occupy; Engine with all the equipments, 24 feet of Suction Hose, 3 Horses, 3 Harnesses, Horse

Hose Carriage, 650 feet 2½-inch double-riveted Leather Hose, 150 feet Rubber, 100 feet Canvas, 3 Pipes, 3 Buckets, 1 Axe, 2 Blunderbusses, in good condition; 600 feet Leather, 300 Rubber, ordinary.

Engine built by Amoskeag Manufacturing Company, Manchester, N.H.; put in service Sept. 18, 1862.

Hydrant Hand Engine Company, No. 4.

House at junction of Western Avenue and River Street, Ward IV.

Albert Norris,	*Foreman.*
Samuel L. Wentworth,	1*st Assistant Foreman.*
John Ham,	2*d Assistant Foreman.*
Benjamin S. Watts,	*Clerk.*
John G. Hicks,	*Steward.*

Members.

William Norris,	Nathaniel Ham,
William H. Jenness,	Louis P. Jenness,
Geo. E. Hayes,	Andrew A. Ayers,
Charles A. Cole,	William Stayner,
William N. Megrath,	John W. Walker,
William Hattee,	Geo. W. Crockett,
John P. Conlan,	Geo. L. Jenness,
Charles F. Richards,	Daniel Kneeland,
Wm. E. Cole,	Charles F. Swett,
Charles F. Butrick,	Charles Ryder.

Condition of House and Apparatus.

House, Engine, 24 feet of Suction Hose, 2 Buckets, 1 Pipe, 1 Axe, 2 Blunderbusses, Hose Carriage, 750 feet 2½-inch single-riveted Leather Hose, 650 feet 2-inch Leather, in good condition.

Engine built by Howard & Davis.

Daniel Webster Steam Fire Engine Company, No. 5.

House on North Avenue, near Russell Street, Ward V.

Daniel O'Connell,	*Foreman.*
	Assistant Foreman.
J. E. Ricker,	*Engineer.*
S. M. Parsons,	*Fireman.*
George T. Presby,	*Driver.*
Geo. E. Muzzey,	*Driver of Hose Carriage.*

Hosemen.

James H. Wakefield,	A. E. Long,
Edward Pratt,	Benjamin Young,
John W. Holbrook,	Charles Marston,
James H. Presby,	Herman Parsons.
A. J. Littlefield,	

Condition of House and Apparatus.

House new, and also Engine and Apparatus; 24 feet of Suction Hose, 3 Horses, 3 Harnesses, Horse Hose Carriage, 1400 feet $2\frac{1}{2}$-inch double-riveted Hose, 200 feet Rubber, 100 feet Canvas, 2 Pipes, 2 Buckets, 1 Axe, 2 Blunderbusses, in good condition.

This Engine is of the double pump, second class, small size pattern, with $4\frac{1}{8}$-inch pump cylinders and 8-inch stroke; steam cylinders $6\frac{7}{8}$-inch diameter and 8-inch stroke, and, without fuel or water, in weight 5800 pounds. It was built by the Amoskeag Manufacturing Company of Manchester, N.H., and put in service May 28, 1869.

The Hose Carriage which accompanies this Engine was built by Messrs. Hunneman & Co., of Boston, is four-wheeled and of the most improved pattern. It will carry 800 feet of hose; and when unloaded weighs 1675 pounds.

Franklin Hook and Ladder Company, No. 1.

House on Main, near Winsor Street, Ward IV.

Thomas Drinan,	*Foreman.*
James P. Ewell,	*Assistant Foreman.*
George W. Lamson,	*Driver.*

Members.

E. A. Hall,	Charles Emerson,
Benjamin T. Marble,	Lewis C. Clark,
George Olsen,	Charles H. Wiggin,
James Cunningham,	John W. Downing,
James R. Bowlby,	Philip Cartwright,
George Butcher,	Edward C. Hiscock,
William H. Lydston,	Elisha W. Morey.

Condition of House and Apparatus.

House, Carriage, 2 Horses, 2 Harnesses, 13 Ladders of various lengths, from 10 to 30 feet, 1 Splice Ladder of 50 feet, and 1 of 36, 2 Guy Ropes, 8 Buckets, 2 Large Hooks with Chain and Rope attached, 2 Hand Hooks with Poles, 6 Crotch-Poles, 4 Chain Dogs, 4 Fire Rakes, 6 Pitchforks, 4 Axes, 1 Crowbar, 1 Saw, 1 Wrench to Reservoir supply pipes, in good condition.

One Long Ladder will be kept in the yard to Steamer House, and also a Fire Hook with Rope attached.

Four Ladders and a Large Hook are kept in a building in the rear of Steamer House No. 5, as also the old Ladder Carriage.

In addition to the articles herein described, the companies are furnished with numbered Badges, Keys, Fire Hats, Belts and Spanners, Lanterns, Crowbars, Hydrant Wrenches, Goose-necks, Reducing Couplings, and all the necessary apparatus for use in the performance of their respective duties.

Engine No. 7 and Hose Carriage are stored in City Yard at Lower Port, and are for sale.

Thomas Wiseman,	*Relief Engineer.*
Thomas Leighton,	*Telegrapher.*

Fire Police.

GEORGE S. PIKE, Ward II.
MOSES RICKER, Ward IV.

Telegraphic Fire Alarm.

Office at Steamer House No. 1, Church Street, Ward 1; Telegraph Line of 15 Miles, 30 Signal Boxes, 125 cup Battery, Repeaters for 4 Circuits, 5 Galvanometers, 1 Switch-Board, together with the necessary tools for work on the line.

RESERVOIRS.

LOCATED IN WARD ONE.

Corner Main and Dana Streets.
Mt. Auburn Street, foot of Linden St.
Mt. Auburn, opp. Orthodox Church.
Corner Brighton and Eliot Streets.
Brattle Street, south end Appian Way.
Garden Street, north end Appian Way.
Junction Garden Street and Concord Avenue, opposite arsenal.
Square, front of house of late Dr. Holmes.
Kirkland, opposite Oxford St.
Cambridge Street, nearly opposite Sumner Street.
Prescott St., near J. D. Green's barn.
Bow Street, centre of Square.
College Yard.

LOCATED IN WARD TWO.

Junction Main Street and Broadway.
Pioneer Street, front of School-house.
Corner Harvard and Davis Streets.
Broadway, corner Winsor Street.
Harvard Street, head of Cherry.
Harvard St., opposite Burial-Ground.
Corner Harvard and Prospect Streets.
Corner Essex and Austin Streets.
Broadway, head of Tremont Street.
Prospect Street, 175 feet north of Broadway.
Norfolk Street, midway between Broadway and Hampshire Street.
Corner Harvard and Columbia Streets.
Austin St., between Temple and Inman.
Corner Inman and Harvard Streets.
Corner Clark and Hampshire Streets.
Corner Webster Ave. and Cambridge Street.
Corner Tremont and Gardner Streets.
Corner Washington and Cherry Sts.

LOCATED IN WARD THREE.

Front of Hotel, junction Bridge and Gore Streets.
Corner Gore and North Third Streets.
Cambridge Street, 70 feet east of Third Street.
Corner South Sixth and Spring Sts.
Under N. England Glass Co.'s Building.
Corner Otis and Fourth Streets.
Corner Cambridge and South Fifth Sts.
Corner Thorndike and Third Streets.
New England Glass Co.'s Yard.
Winchester's Factory Yard.
Under Lowell R. R. Machine Shop.

LOCATED IN WARD FOUR.

Corner Washington and Harrison Sts.
East end of School St., near Brook's Buildings.
Main St., 50 feet west of Car Factory.
Corner of School and Cherry Streets.
Corner Brookline and Auburn Streets.
Corner of Pearl and Franklin Streets.
Junction Western Avenue and Pleasant Street.
Corner Magazine and William Sts.
Main Street, near Liberty Pole.
Corner Main and Brookline Streets.
Corner Austin and Douglass Streets.
Pearl St., near Jones & Co.'s Factory.
Main Street, junction of Western Avenue and River Street.
Corner Main and Austin Streets.
Green Street, opposite house of Daniel Stone.
Main Street, east side of D. Osborn's Factory.
Corner Washington and Pine Streets.

LOCATED IN WARD FIVE.

In Square, opposite Porter's Hotel.
N. Avenue, near Engine House No. 5.

HYDRANTS.

A star (*) indicates 3-inch hydrants.

LOCATED IN WARD ONE.

On Brattle St., opp. the line between Messrs. Longfellow and Hastings.
Corner Brattle and Ash Streets.
Corner Brattle and Hilliard Streets.
On Brattle St., corner Brattle House estate.
On Harvard St., opp. Harvard Block.
Junction of Main and Harvard Sts.
Corner Main and Trowbridge Streets.
Corner Harvard and Remington Sts.
On Cambridge St., front Scientific Sch.
Corner Cambridge and Sumner Streets.
Corner North Avenue and Chauncy St.
Mt. Auburn, opp. McClellan Street.
Corner Cambridge and Baldwin Sts.
*Corner Appleton and Highland Streets.
Corner Church and Palmer Streets.
Corner Garden and Mason Streets.
Junction of Waterhouse Street and Concord Avenue.
*Corner Mellen and Oxford Streets.
Corner Mt. Auburn and Brighton Sts.
Corner Mt. Auburn and Howard Sts.
Corner Dunster and South Streets.
On Kirkland Street, opp. Divinity Hall Avenue.
On Oxford Street.
Corner North Avenue and Shepard St.
Between the rails of R. R. track, in front of Lyceum Hall.
Corner Phillips Place and Berkeley St.
Craigie, near corner Sparks Street.
*Corner Brattle and Lowell Streets.
*Junction Broadway and Cambridge St.
*Corner Broadway and Prescott St.
*Corner Broadway and Trowbridge St.
*Concord Avenue, opposite Craigie St.
*Corner Broadway and Quincy Street.
*Corner Broadway and Ware Street.
*Corner Broadway and Ellery Street.
*Corner Foster and Irving Streets.
*Everett, south side, midway between North Avenue and Oxford Street.
*Corner Oxford and Everett Streets.
*Corner North Avenue and Holmes Pl.
*Corner North Avenue and Jarvis St.
*Mt. Auburn and Bow Streets.
*Mt. Auburn, opp. De Wolf Street.
*Chauncy Street, 500 feet from North Avenue.
*Ellery St., east side, midway between Broadway and Cambridge Streets.
Corner Banks and Flagg Streets.
Corner Banks and Cowperthwaite Sts.
Corner Dunster and Mt. Auburn Sts.
Corner Brattle and Willard Streets.
Corner Mt. Auburn and Willard Sts.
Corner Prescott and Harvard Streets.
Corner Mt. Auburn and Sparks Sts.
On Divinity Avenue, 200 feet front Divinity Hall.
Corner Crane and De Wolf Streets.
Corner Sparks and Foster Streets.
Corner Fayerweather and Brattle Sts.
On Fayerweather St., opp. Reservoir Street.
On Brattle St., near Coolidge's Lane.
On Brattle St., front of Mrs. Wyeth's estate.
On Brattle Street, opp. Mt. Auburn Green-house.
Cor. Brattle St. and Fresh Pond Lane.
On Sparks Street, opp. McDonald's Marble Works.
Corner Concord Ave. and Sparks St.
On Sparks St., opp. Chas. T. Russell's.
Corner of Garden and Wallace Streets.
On Brattle Street, near R. R. Stables, in Watertown.

LOCATED IN WARD TWO.

Corner Main and Lee Streets.
Corner Main and Hancock Streets.
On Moore, head of Hastings Street.
Corner Washington and Clark Streets.
Corner Harvard and Clark Streets.
On Norfolk St., head of Washington St.
On Essex St., westerly side, midway between Harvard and Austin Sts.
On Cambridge Street, north side, near junction of Hampshire and Cambridge Streets.
On Main, opposite Pleasant Street.
Corner Main and Essex Streets.
Corner Winsor and Lincoln Streets.
Corner Winsor and Hampshire Streets.
On Cambridge St., cor. Willow Place.

WARD TWO (*continued*).

On Cambridge Street, opposite the head of Maple Avenue.
Corner of Broadway and Davis Street.
Corner Harvard and Hancock Streets.
Corner Harvard and Dana Streets.
Corner Columbia and Washington Sts.
*Corner Winsor and Washington Sts.
On Prospect Street, opp. B. Tilton's.
Corner Prospect Street and Broadway.
*Main Street, Lower Port.
*Corner Cambridge and Rideout Sts.
*West Boston Bridge.
*West Boston Bridge.
Corner Prospect and Hampshire Sts.
Corner Norfolk and Hampshire Streets.
On Tremont Street, near Wellington's House.
Main, corner of Dock Street.
Corner Market and Union Streets.
*Corner Broadway and Dana Street.
*Corner Broadway and Ellsworth Ave.
*Corner Broadway and Fayette Street.
*Corner Broadway and Amory Street.
*Corner Broadway and Norfolk Street.
*Corner Broadway and Boardman St.
Broadway, opp. Tucker's Factory.
*Centre Street, opp. Dana School-house.
*Corner Broadway and Hancock Street.
*Corner Broadway and Antrim Street.
*Corner Broadway and Tremont Street.
*Corner Broadway and Elm Street.
*Junction Broadway and Hampshire St.
*Corner Broadway and Dock Street.
*Corner Broadway and Court Street.
*Corner Columbia and Market Streets.
*Corner Columbia and Hampshire Sts.
*Corner Union and Hampshire Streets.
*Corner Elm and Market Streets.
*Bigelow, midway between Main and Harvard Streets.
*Corner Main and Bigelow Streets.
*Corner Harvard and Norfolk Streets.
Corner Harvard and Pine Streets.
Corner Cambridge and Norfolk Streets.
Corner Norfolk and Worcester Streets.
On Maple Ave., midway between Broadway and Cambridge Street.
Corner Jefferson and Rideout Streets.
Corner Amory and Summer Streets.
On Oak St., west side, near Somerville Line.
Corner Houghton and Bolton Streets, in Somerville.

LOCATED IN WARD THREE.

Corner Cambridge and Sixth Streets.
Corner Cambridge and Third Streets.
Junction Cambridge and Bridge Sts.
On Bridge Street, opposite Wellington's counting-room.
*On North Street, near Glass Co.'s cutting-shop.
Corner Bridge and Water Streets.
Corner Third and Vine Streets.
*Corner Cambridge Street and Franklin Alley.
Corner Gore and Lambert Streets.
*Court, opposite Kerosene Works.
Corner Fifth and Gore Streets.
Corner Second and Otis Streets.
On Bridge Street, opposite Bay State Glass-House.
Corner Otis and Seventh Streets.
Corner Thorndike and Sixth Streets.
Corner Thorndike and Fifth Streets.
Corner Gore and Fourth Streets.
Corner Spring and Fourth Streets.
*Corner Otis and First Streets.
*Corner Fifth and Charles Streets.
*Corner Fifth and Spring Streets.
*Corner Jefferson and Warren Streets.
*Corner Court and Munroe Streets.
*Corner Sixth and Gore Streets.
*Corner North and East Streets.
*Corner Bridge and Prison Point Sts.
*Corner Cambridge and Lambert Sts.
*Corner Charles and Fourth Streets.
*Corner Bridge and Short Streets.
*Corner Third and Winter Streets.
Corner Fourth and Winter Streets.
Corner Fourth and Bridge Streets.
Corner Spring and Second Streets.
Corner Vine and Fifth Streets.
On Bridge Street, north side, opposite Braman and Shaw's.

LOCATED IN WARD FOUR.

Corner Main and Columbia Streets.
Near junction of Main and Austin Sts.
Corner Main and Winsor Streets.
Junction of Front and State Streets.
On Washington Street, near east end.
On Main St., opp. Brook's Buildings.
On River, opposite Cottage Street.
On River, opposite Harrison Avenue.
Corner Western Avenue and Jay St.
*Corner Pleasant and Walnut Streets.
*Corner Pleasant and Somerset Streets.
*Corner Pleasant and Park Streets.
*Corner Pleasant and Webster Streets.
*Corner Pleasant and Green Streets.
*Franklin, near the hill.
*Corner Pleasant and Franklin Streets.

WARD FOUR (*continued*).

Corner Pleasant and Prince Streets.
Corner River and Franklin Streets.
Corner Pearl and Cottage Streets.
Corner Pearl and Auburn Streets.
Corner Brookline and Franklin Streets.
On Main Street, north side, opposite Kennedy's Bakery.
Foot of School Street.
Magazine, near Short Street.
Corner Main and Norfolk Streets.
*Corner Franklin and Soden Streets.
*Corner Franklin and Hancock Streets.
*Corner Franklin and Bay Streets.
*Corner Magazine and Park Streets.
*Corner Magazine and Webster Streets.
*Corner Magazine and Warland Streets.
*Corner Magazine and Auburn Streets.
*Corner Magazine and Cottage Streets.
*Corner Magazine and Walnut Streets.
*Corner Green and Bay Streets.
*Corner Pearl and Lake Streets.
*Corner Western Ave. and Howard St.
*Corner Pearl and Walnut Streets.
*Corner Brookline and Walnut Streets.
*Corner Brookline and Erie Streets.
*Corner Brookline and Allston Streets.
*Corner Brookline and Hamilton Sts.
*Corner Brookline and Valentine Sts.
Corner Brookline and Chestnut Streets.
Corner Pearl and Perry Streets.
Corner Magazine and Willow Streets.
On Blackstone St., west side, 100 feet from Avenue.
Corner Putnam St. and Putnam Place.

LOCATED IN WARD FIVE.

Between rails of railroad, opp. office door.
On North Avenue, opp. Linnæan St.
*On North Avenue, cor. Chester Street.
*Garden, opposite Bond Street.
*Corner North Ave. and Arlington St.
Corner North Avenue and Rice Street.
*North Avenue, near Gerry's saloon.
*North Avenue, cor. Coggswell Avenue.
*Corner Linnæan and Avon Streets.
*Corner Linnæan and Bowdoin Streets.
*Corner North Avenue and Allen St.
*Corner North Avenue and Dover St.
*Corner Shepard and Avon Streets.
*Two on Raymond, south side, near Mr. Dresser's estate.
*Corner Linnæan and Raymond Streets.
*Corner Oxford and Forest Streets.
*Corner North Ave. and Sacramento St.
On Beach, east side, 20 feet from Orchard Street.
On North Ave., near Walcott Richardson's gate.
Corner North Avenue and Cedar St.
On Cedar Street, cor. lane to Factory.
On North Avenue, opp. Tannery.
Corner Concord Ave. and Madison St.
Corner Wyeth and Garden Streets.
On Oxford, opposite Eustis Street.
On Concord Ave., opp. Bond Street.
On Arlington St., 500 feet from N. Ave.
On Tuttle Street, opp. Ladd's barn.
Corner Roseland and Frost Streets.

FIRES AND ALARMS FROM DECEMBER 18, 1869, TO DECEMBER 18, 1870.

Date.	No. of Box.	Owner or Occupant.	Description.	Situation.	Loss.	Insurance.	Causes.
1869.							
Dec. 18	52	Michael Murphy . .	Dwelling-house	Harvey Street . . .	$250	$250	Unknown.
1870.							
Jan. 5	14	Mary E. Martin . . .	Petroleum	Clark Street	Trifling.		Petroleum from stove took fire.
" 8	34	James Kernan . . .	Wood	Cowperthwaite Street .	"		Wood in stove oven took fire.
" 10	7	Patrick Short . . .	Shed	Columbia Street. . .	50	50	Stove set fire to side of the building.
" 19	27	Walter Hackett . . .	Dwelling-house	Green Street	Trifling.		Children playing with matches.
" 25	5		Alarm	Somerville			Fire in Somerville.
" 28	12	Givens and Buskirk .	Wheelwright and Blacksm'h Shop	Junction of Main and Harvard, Lower Port	1,000	900	Unknown.
Feb. 1	12	Charles Libbey . . .	Wheelwright shop	Cor. Broadway and Court	1,500	450	"
" 12	36	A. Morgan	Dwelling-house	Brattle Street	300	300	"
" 22	51	Caleb Leland and others.	Two-story wooden building . .	Union Square, Ward V.	1,800	1,800	Probably from small furnace.
" 27	12	Boston Stamping Co. .	Tin Stamping Factory . . .	Court Street	Trifling.		Fire heat through hearth.
March 6	4	James Garvin . . .	Dwelling-house	Fifth Street	"		Took from funnel through roof.
April 30			Alarm	Boston			Fire in Boston.
May 4	7	C. White	Tin-ware Factory	Cambridge, near Winsor			Accidental.
" 5	4		Grass	On marsh near Court St.			Set fire by boys.
" 21	12	Kendall & Roberts .	Iron Foundry	Main Street, Lower Port	3,100	3,100	Incendiary.
" 22	36	Ellen Conners . . .	Shed	Brighton Street . . .	Trifling.		Took from hot ashes.
June 15	14	Geo. Barnard . . .	Dwelling-house	Hastings Street . . .	"		Chimney set fire to side of building.
" 20	24	Holmes & Rugg. . .	Coal shed	River Street	"		Struck by lightning.
" 23	6	Jesse Winward . . .	Bone Factory	Portland Street . . .	"		Boiler explosion.
July 4	5		False alarm	Ward III			False alarm.
" 18	2		Alarm	Charlestown			Fire in Charlestown.
" 19	35	Hannah B. Shaw . .	Dwelling-house	Kirkland Street . . .	17,000	11,000	Spontaneous combustion from oil rags.
" 24	17	J. Perham, Jr. . . .	Shed	Columbia Street . .	Trifling		Sparks from chimney.
" 25	2		Alarm	East Boston			Fire in East Boston.
Aug. 7	36	William L. Whitney .	Picture-frame store	Brattle Street . . .	1,000	1,000	Unknown.
		A. Morgan	Stock in above store	" " . . .	1,700	1,500	
" 24	16	Mary Brown	Out-building	Front Street	Trifling.		Probably from smoking pipe.

Aug.	30	13	Fisk & Co.	Oil works (shed)	Broadway	Trifling.		Took from stove.
Sept.	5	52	T. Clark	Shed attached to house	North Avenue	"		Unknown.
"	16	3	J. Bailey	Barn	Otis Street	200	200	Children playing with matches.
Oct.	14	17	Thurston & Hall	Bakery	Elm Street	250	250	Accidental.
"	18	4	W. Lincoln	Lubricating Oil Works	Court Street	10,000	6,000	Gas from still took fire.
"	20	26		False alarm	Ward II.			False alarm.
"	31	16	Michael Griffin	Bed	Brookline Street	Trifling.		Unknown.
Nov.	2	32	Frank Beeker	Hot-house	Main, opp. Ellery Street	300	100	Brick-work of furnace in contact with the building.
"	11	52	Philip Doherty	Dwelling-house	Concord Avenue	1,000		Sparks from locomotive.
"	12	21	City of Cambridge	City Hall	Main, cor. Pleasant	100	100	Took from furnace.
"	12	7	James McLean	Shed	Columbia Street	150		Unknown.
"	15	3	W. Lincoln	Lubricating Oil Works	Court Street	Trifling.		Gas from still took fire.
"	19	25	Madison McCoy	Shavings in cellar	Rockwell Street	"		Lamp tipped over.
"	20	17		False alarm	Ward II.			False alarm.
Dec.	2	17	Andrew Foster	Dwelling-house	Fremont Street	Trifling.		Sparks from chimney.
"	3	36	J. V. Bates	Dwelling-house	Church Street	"		" " "
"	6	36	J. Holmes	Shoe-store, one-story building	Main, near Bow Street	150	150	Unknown.
			Morris Dollard	Stock in above store		600	600	
"	14	25	Cambridge Stamping Co.	Tin Stamping Factory	Pleasant Street	300		Material in kettle boiled over and took fire.
"	16	12	Boston Stamping Co.	Tin Stamping Factory	Court Street			Steam mistaken for smoke.
						$40,750	$27,750	

RECAPITULATION.

Number of Engineers		5
Members		98
Fire Police		2
Steam Fire Engines		4
Hand Engines		2
Horses		14
Horse Hose Carriages		4
Hand Hose Carriages		2
Feet of Suction Hose		154
Feet of Leading Hose		8100
Buckets		25
Pipes		10
Blunderbusses		10
H. & L. Carriages		1
Ladders		20
Large Hooks with Chains		5
Hand Hooks with Poles		4
Fire Rakes		4
Pitchforks		6
Crotch Poles		6
Fire Hats		83
Reservoirs		61
Hydrants		235
Alarms from fires in the city	33	
" " " out of city	4	
" " other causes	9	
	—	46
Loss on Buildings and Stock	$40,750	
Insurance on Losses	27,750	
Total Loss	$13,000	

REPORT

OF

GEORGE L. CADE,

SUPERINTENDENT OF STREETS.

CITY OF CAMBRIDGE, *Dec.* 15, 1870.

To the Honorable City Council: —

THE undersigned asks leave to submit for your consideration his Seventh Annual

REPORT.

Streets and Paving.

The appropriation for Streets and Paving for the financial year ending Nov. 30, 1870, was . .	$80,000.00
Additional Appropriations	127,749.34
Total Appropriation	$207,749.34
Amount expended	197,480.15
Balance unexpended	$10,269.19
Amount received and paid to Treasurer	$1,228.87

The appropriation for this Department has been expended as follows: —

For Extra Teams	$10,162.19
" Gravel and Stone for Grading	15,485.66
" Hay and Grain (6 months' stock hay on hand)	4,483.37
" Brick, Edgestone, Paving Stone, and Labor on Paving	86,538.77
" Land Damages on Bridge, Mt. Auburn, Essex, Concord Avenue, Clark, and Ellery Streets .	48,003.56
" Repairs, Labor, and general running Expenses of Street Department	32,806.60
Total	$197,480.15

With but two exceptions, Broadway and Fourth Street, all orders for sidewalks or paving, that have been passed during the year, have been completed. The sidewalk on Broadway has not been finished on account of the lateness of the season and of the proposed changes that are to be made by some of the abutters on Dana Hill in their estates, in front of which a considerable amount of grading and cutting down will have to be done. This work can be done in the early spring; and then I would respectfully recommend that sidewalks be laid with brick and stone on the westerly side of Winsor and Columbia Streets from Main to Cambridge Street; and also on the westerly side of Norfolk Street from Main to Hampshire Street. There should also be a sidewalk laid on the westerly side of River Street from Main to Blackstone Street. All of these walks are absolutely necessary, and in my opinion are of more importance than any others in the City. I would also again urge the necessity of paving Bridge Street its entire length from its junction with Cambridge Street to Miller's River or Somerville line. This work is absolutely necessary for the convenience of public travel. This street is one of the most important in our city; and, as it is subjected to such heavy travel by brick, sand, and stone teams, it is next to an impossibility to keep it in what might be called decent order in any other way than by paving the same. A great improvement has been made on the easterly end of this street the past year, at an expense of $66,065.60; but it has been money well spent. This is the largest amount ever expended on any one street in this city, but I have yet to hear of or see the first tax-payer who objects to it. All say from every quarter, "What an improvement!" Orders have been passed for the widening of several streets, which will involve an expenditure of at least $60,000 before they will be completed. If this large sum is to be charged to Streets and Paving, it will necessarily follow that a large appropriation will have to be made for this Department: at least $150,000 will be required. During the past year there have been 69,196 yards of paving done, and 46,000 feet of edgestone set. There will be due the City for assessments on sidewalks, after the Broadway and Fourth Street sidewalks are completed, upwards of $30,000 the coming year, exclusive of any new

work which may be ordered. I would again call the attention of the City Council to the urgent necessity of making some provision for the procuring of gravel of a better quality than we are now using. Our gravel does not possess that wearing quality that is required for the use of streets that have so much heavy teaming upon them as the streets of Cambridge are subjected to; and, moreover, the long distance it has to be transported before we make use of it makes it very expensive. In my opinion some measure should be taken for the purchase of a gravel bank on the line of the Boston and Albany Railroad, if some arrangement can be made with that Corporation for transportation. Or there is a good bank of gravel, at least much better than any we now have, at the lower end of Magazine Street, that might be used in the Second and Third Districts, at a saving of thousands of dollars. The streets and sidewalks of the city are in a fair condition; a majority of them much better than ever before at this season of the year. The past year has been an exceedingly hard one for streets, on account of the extreme dryness, which has caused the materials to be ground up and blown away more than was ever known before.

Bridges.

The appropriation for Bridges for the financial year ending Nov. 30, 1870, was	$13,000.00
Amount expended	13,000.00

The several bridges of the city are in good condition, with the exception of West Boston and Canal, of which it is not necessary for me to say more than that I consider them in a poor condition, and am surprised that they have stood so well the heavy travel to which they are subjected. I have delayed making any extensive repairs on them this fall, as one or both will, no doubt, be rebuilt the coming year. An addition to the number of bridges has been made the past year, by a recent act of the Legislature in laying out Brookline Bridge as a public highway. The entire bridge has been rebuilt in a substantial manner, including a stone abutment on the northerly end of the same. The total cost of this has been about six thousand dollars ($6,000). For the general

repairs of bridges the coming year, in my opinion an appropriation of not less than fifteen thousand dollars ($15,000) will be required. It is impossible to make even an approximate estimate of the amount that will be required for the changes that are to be made on the West Boston and Canal Bridges, until some definite plan is fixed upon, by which the apportionment is to be made, by the Commissioners now acting on that subject.

Reservoirs and Drains.

The appropriation for Reservoirs and Drains for the financial year ending Nov. 30, 1870, was	$125,000.00
Amount expended	115,191.57
Balance unexpended	$9,808.43

The several sewers that have been constructed the past season have been under the direction of the Committee and City Engineer, with but two exceptions, the Bow and Market Street sewers, which were completed under the direction of the Superintendent of Drains. There have been expended on these, and including sundry repairs on sewers and cesspools, the sum of $4,136.72. Of the balance of the expenditures, I have no means of knowledge except the records which I find in the Auditor's books. By the passage of the new code of ordinances, the office of Superintendent of Drains has been abolished, and the duties of the same now devolve on the City Engineer.

Schedule of Personal Property belonging to the Street Department.

Sixteen Horses	$6,800.00
Fifteen Cart Harnesses	450.00
Ten Carts	750.00
One Wagon and Harness	350.00
One Light Wagon and Harness	175.00
One Set of Runners	75.00
One Plough	10.00
Amount carried forward	$8,610.00

Amount brought forward	$8,610.00
Utensils for work on streets, &c.	300.00
Stable Furniture	75.00
Stone Crusher and Steam-engine	3,000.00
Nine Snow Ploughs	180.00
Two Stone Rollers	300.00
One Wagon	250.00
	$12,715.00

Respectfully submitted.

GEORGE L. CADE,

Superintendent of Streets.

REPORT

OF

THE CHIEF OF POLICE.

OFFICE OF CHIEF OF POLICE,
CAMBRIDGE, *Dec.* 1870.

To the Honorable the Mayor and Aldermen of the City of Cambridge:—

GENTLEMEN, — I have the honor to submit my Seventh Annual Report, showing the doings of the Department for the year ending November 30, 1870.

SYNOPSIS

OF THE DOINGS OF THE DEPARTMENT FOR THE YEAR.

Whole number of arrests		1695
Males	1490	
Females	205	
Residents	1237	
Non-residents	458	
Adults	1540	
Minors	155	
Whole number of lodgers		1349
Males	1196	
Females	153	
Total number		3044

Arrests and Lodgers in Several Districts.

Districts	No. 1.	No. 2.	No. 3.
Arrests	402	617	676
Lodgers	310	528	511
	712	1145	1187

Nature of Offence.

Adultery	3
Assault and battery	154
Assault on officers	20
Attempt to rescue	3
Attempt to commit rape	1
Bastardy	7
Breaking and entering	5
Carrying concealed weapons	1
Contempt of Court	1
Cruelty to animals	7
Common drunkards	28
Drunkenness	788
Disturbing peace	184
Disturbing public meeting	1
Disturbing public worship	2
Deserter from U. S. Navy	1
Escaped convicts	12
Exposing person	2
Exposing poison to dog	1
Embezzlement	2
Felonious assault	5
Forgery	1
Fornication	4
Fast driving	2
Habitual absentees from school	7
Held as witnesses	5
Highway robbery	3
Insanity	20
Incendiaries	3
Keeping liquor nuisance	3
Keeping unlicensed dogs	16
Keeping dangerous dog	1
Keeping disorderly house	1
Larceny	96
Malicious mischief	27
Malicious burning	1

Malicious trespass	25
Night walking	1
Obstructing horse-cars	1
Polygamy	1
Pickpockets	2
Rape	1
Receiving stolen property	1
Robbing clothes-line	1
Refusing to pay car fare	4
Runaway minors	2
Surety of peace	30
Suspicious persons	13
Stubborn children	9
Surrendered by bail	2
Stealing ride	2
Vagabonds	44
Violation Lord's day	82
Violation city ordinances	54
Violation game law	2

There has been paid into the City Treasury during the year $3,572.89, being the amount received for services on warrants, and for officers' fees in criminal cases.

For the conveyance of prisoners daily from the several police stations to the Police Court, and from thence to the House of Correction, Jail, and Work House, there has been received the sum of		$1,329.75
Amount paid for horse-keeping	$312.00	
" " for shoeing	31.20	
" " repairs of wagon, &c.	37.87	
" " use of sleigh	13.00	
" " exchange on horses	175.00	
		$569.07
Balance in favor of city		$760.68

I have made 466 details during the year for special and extra

duty, and this service has been readily and promptly responded to by the officers.

The force has been increased, during the year, by the addition of six men, and now numbers forty. The office business has also kept pace with the numerical increase of the force.

The officers of the stations are deserving of the highest praise for the zeal they have exhibited in making their station-houses, offices, &c., as comfortable as the means in their power would allow; and it is a source of unfeigned gratification to me to be able to report favorably of their general condition of neatness and cleanliness, considering the great number of lodgers who nightly occupy our stations. With a commendable pride, the officers have produced a most favorable change, which has been highly conducive to the comfort of those confined.

A great number of lodgers, both male and female, nightly seek refuge at the station-houses, some of whom are old and infirm, and, so far as is known, are innocent of any crime, but are driven by unrelenting poverty to such dire extremities. Humanity requires that this unfortunate class should be provided for. 1349 of this class have been lodged in our station-houses during the past year. Separate apartments ought to be furnished in each station-house for their accommodation.

I would call attention to the urgent necessity which exists for the better accommodation of the Police Court; the room now used for this purpose being some twenty feet square, without ventilation, or suitable accommodation for the Court, counsel, witnesses, officers, or prisoners, and with no room for the examination of complaints frequently made which require privacy in investigating. Better accommodations might be furnished at small expense, and without the necessity of purchasing land, by the enlargement of the present building.

The Department is in good condition, and, so far as I know, gives satisfaction to our citizens. The preservation of peace and good order, so essential to our security and comfort, as well as the good name of our city abroad, requires a vigilant and energetic police. The safety of a community is dependent, not only upon the promptness with which offenders against the laws are brought

to justice, but also to a large extent upon those precautionary measures which most effectually restrain the viciously inclined, and thus prevent the actual commission of crime.

To secure the highest success of this Department, it is of the utmost importance that those who are appointed should be discreet, temperate, efficient, and upright men. If, in addition to these qualities, a candidate for the place has had the benefit of experience, and has proved himself worthy of the position in all respects, it is manifest that he has a still higher claim to consideration.

That due care and discrimination will be exercised in the selection of these officers, I cannot allow myself to doubt.

Respectfully submitted.

FORDYCE M. STIMSON,
Chief of Police.

REPORT

OF

ROLAND LITCHFIELD,

SUPERINTENDENT OF LAMPS.

To his Honor the Mayor and Board of Aldermen of the City of Cambridge:—

GENTLEMEN, — I herewith submit my Annual Report in relation to the Lamp Department.

The number of Street Lamps is as follows: —

District One,	227 gas,	4 fluid.		
District Two,	225 gas,	59 fluid.		
District Three,	80 gas,	37 fluid.		
	532 gas,	100 fluid.	Total . .	632

Twenty-six of the above were added during the year.

The following is an exhibit of the expenses of the Street Lamps for the year: —

For gas and U. S. tax	$8,096.16
For lighting	3,121.90
For fixtures and repairs	1,149.34
For naphtha	424.08
For glass and setting	329.09
	$13,120.57

The average cost of each lamp burning gas through the year was six cents and one-half mill per night, and the average cost of each lamp burning naphtha for the same time was one cent and six mills per night for each lamp.

Six men are employed to light the lamps and keep the lanterns clean, and they are paid forty-two cents per month for each lamp.

I would recommend that four or more additional lamp-posts and lanterns be placed on the causeway between Harrison Street and the Lower Port; and that these lamps, together with all the lamps on West Boston Bridge, Canal Bridge, and Prison Point Bridge, be lighted with gas.

Respectfully submitted.

ROLAND LITCHFIELD,
Superintendent of Lamps.

CAMBRIDGE, *Dec.* 1, 1870.

REPORT

OF

JOSIAH G. CHASE,

CITY ENGINEER.

To the City Council: —

GENTLEMEN, — In compliance with an ordinance of the City relating to the department of Engineering and Surveying, I herewith submit to the City Council my Fourth Annual Report for the year ending Nov. 30, 1870.

The great benefit to be derived by populous cities from systematic and properly constructed drainage has been fully appreciated by the City Council, as will appear from the liberal appropriations granted for this department of expenditure, and the commendable progress made by the efficient Joint Standing Committee on Reservoirs and Drains in complying with the numerous orders passed directing construction in sundry localities and streets.

Total amount of appropriation, $125,000; from which the following expenditures have been made: —

	Length.	Cost.
WOODEN SEWER.		
Extending from Miller's River along the easterly side of the B. & A. Railroad land, to intersect with the sewer in Cambridge Street. Near its outlet into said river is constructed a tide-gate, intended, as in many other trunk outlet sewers in the city, to prevent the reflux of tide water upon the dyked low lands adjacent, which have been and are now being improved by the erection of a class of moderate-cost dwellings, and for other building purposes; to which objectionable feature allusion will be made hereafter.		
Rectangular, 3 feet 4 inches by 3 feet inside	1,029.	$4,697.15
SAMUEL PALMER, *Contractor.*		

	Length.	Cost.
MARKET STREET SEWER.		
From Columbia Street to Elm Street, Egg-shaped, 17″ × 15″, common brick, covered with stone	238.	$371.75
Geo. L. Cade, *Supt. of Drains.*		
BOW STREET SEWER.		
From Chestnut Street to Main Street, Cement pipe, 12″ diameter	577.	$745.81
Geo. L. Cade, *Supt. of Drains.*		
BOWDOIN STREET SEWER.		
From North Avenue to near Linnæan Street, Egg-shaped, 17″ × 15″, common brick, covered with stone	847.5	$1,347.18
Samuel Palmer, *Contractor.*		
ANTRIM STREET SEWER.		
From Oak Street, through Cambridge Street, relaid . . .	405.	
Thence to near Broadway, Egg-shaped, 17″ × 15″, common brick, covered with stone	1,277.	$2,677.10
Samuel Palmer, *Contractor.*		
SODEN STREET AND FRANKLIN STREET SEWERS.		
From Western Avenue to Franklin Street, Egg-shaped, 21″ × 17″, common brick, covered with stone	522.	
From Soden to near Hancock Street, a wooden scow, with brick walls, covered with stone, 24″ × 18″	459.5	$2,343.70
Samuel Palmer, *Contractor.*		
WINSOR STREET SEWER.		
From Cambridge Street, southerly, Cement pipe, 12″ diameter	282.	$379.15
Wm. H. White, *Foreman.*		
NORFOLK STREET SEWER.		
From Cambridge Street to Hampshire Street, Cement pipe, oval or egg-shaped, 15 inch capacity	769.	$1,385.45
Samuel Palmer, *Contractor.*		
SIDNEY STREET SEWER.		
From outlet in Creek on marsh to near Front Street, a wooden scow, with brick walls, covered with stone, inside dimensions 22″ × 16″	570.	
Egg-shaped, 15″ × 13″, common brick, covered with stone .	112.	$1,306.20
Samuel Palmer, *Contractor.*		
HARVARD STREET SEWER.		
From centre of Norfolk Street to centre of Columbia Street, 2 feet 9 inches by 2 feet 6 inches, arched, one ring common brick	557.8	$1,786.49
Wm. H. White, *Foreman.*		

	Length.	Cost.
LINDEN STREET SEWER.		
From Mount Auburn Street to Harvard Street, Cement pipe, 10 inches diameter	440.3	$351.51
Samuel Palmer, *Contractor.*		
THIRD STREET SEWER.		
From Bridge Street sewer to near Gore Street, Cement pipe, 12 inches diameter	240.	$303.68
John McSorley, *Foreman.*		
NORFOLK STREET SEWER.		
From centre of Suffolk Street to near Harvard Street, Cement pipe, 12 inches diameter	311.	$386.78
Thomas Mehan, *Foreman.*		
FRANKLIN STREET SEWER.		
From Brookline Street to Pearl Street, Cement pipe, 12 inches diameter	448.	$553.42
Thomas Mehan, *Foreman.*		
CHARLES AND FIFTH STREET SEWER.		
From centre Fourth Street to centre of Fifth Street, wooden scow, brick walls, covered with stone, 24″ × 24″	453.	
From Charles St. north, Cement pipe, 15 inches diameter	240.	
From Charles St. north, Cement pipe, 12 inches diameter	174.	$1,852.27
John McSorley, *Foreman.*		
MOUNT AUBURN STREET SEWER.		
From old stone drain in Brattle Square, westerly, Egg-shaped, 21″ × 19″, common brick, covered with stone	226.	$425.46
Opening and cleaning about 400 feet of old drain.		
Thomas Mehan, *Foreman.*		
SACRAMENTO STREET SEWER.		
From Oxford Street sewer to near North Avenue, Cement pipe, oval, or egg-shaped, 15 inches diameter	723.	
From Oxford Street sewer to near Somerville line, Cement pipe, oval, or egg-shaped, 18 inches diameter	804.	$3,052.21
John McSorley and Thomas Mehan, *Foremen.*		
WENDELL STREET SEWER.		
From Oxford Street sewer to near North Avenue, Cement pipe, oval, 15 inches diameter	655.	$1,251.53
John McSorley, *Foreman.*		
MELLEN STREET SEWER.		
From Oxford Street sewer to North Avenue sewer, Cement pipe, oval, 18 inches diameter	120.	
Cement pipe, round, 15 inches diameter	819.	$1,803.93
Thomas Mehan, *Foreman.*		

	Length.	Cost.
KIRKLAND STREET SEWER.		
This sewer, properly considered, is a continuation of, as it is a branch from, the Oxford Street sewer, of the same capacity and depth from its union therewith, and laid upon the same grade.		
It intersects with the Baldwin Street sewer, receives and conducts away the accumulated sewerage of this large section of the City, which has hitherto been conducted miasmatically through the town of Somerville, by an open and sluggish channel, in deviating courses, to the mud flats of Miller's River. Size of sewer, 3 feet 3 inches by 3 feet, one ring common brick	2,168.5	$14,572.25
Messrs. Paul and Roberts, *Contractors.*		
NORTH AVENUE SEWER.		
From Alewife Brook to a point in Milk Street, near Somerville line.		
Two rings of common brick, arched, 3 feet 6 inches by 3 feet	863.	
One ring of common brick, arched, 3 feet 3 inches by 3 feet	958.	
One ring of common brick, arched, 3 feet by 2 feet 8 inches	2,959.	
One ring of common brick, arched, 2 feet 6 inches by 2 feet	936.	
Egg-shaped, 21″ × 17″, common brick, covered with stone	1,057.	$36,207.60
Samuel Palmer, *Contractor.*		
In connection with the above enumerated sewers there have been built seventy-five catch basins, nineteen manholes, and three tide-gates. All cement pipes used for sewers have been made and laid with Y branch inlets, sufficient in number for present and prospective house and surface drainage; their locations, for future information, being definitely fixed upon the plan of each.		
To prevent injury, liable from frequent and unskilful tapping, all brick sewers have been supplied with cement inlet pipes of from 6 to 9 inches in diameter, inserted into the sewer upon each side, at an angle of about 45° with the direction of the current thereof, and at intervals of about fifty feet. Many of the sewers in the city are required to be laid to a grade of from one inch to one-tenth of a foot per one hundred feet in length, requiring much care and precaution in construction.		
HIGHLAND AVENUE SEWER.		
From Cambridge Street to near Broadway, a private sewer, Egg-shaped, 21″ × 17″, common brick, covering stone furnished by the City	921.	
ARLINGTON STREET SEWER.		
Extension from end near North Avenue to the highlands west, a private sewer, Cement pipe, 12″ inches diameter .	1,165.	

"OXFORD STREET" SEWER.	Length.	Cost.
From Charles River to Sacramento Street, south of Kirkland Street, arched, 4 feet 6 inches by 4 feet, two rings of common bricks.		
Built by Charles Linehan, *Contractor*, in 1869	1,411.75	$9,600.00
Built by Charles Linehan, *Contractor*, in 1870	1,279.	$14,798.40
North of Kirkland Street, manhole, arched, 3 feet 3 inches by 3 feet, single ring of common brick.		
Built by Charles Linehan	36.5	
And also the gate-chamber and gates, and five manholes, with one uncompleted. The above portion of this work remains now in nearly the same condition as left by the contractor, and, in consequence of its defects and unworkmanlike condition, has not been deemed suitable for acceptance as provided therefor. 3 feet 3 inches by 3 feet, one ring common brick, built by the City; 6 manholes and completion of one unfinished, built by the City	2,275.	
Balance due from City on contract with Linehan		$19,353.60
Repairs on Franklin Street and building sundry cesspools .		$459.98
Total length of sewer built from Nov. 30, 1869, to Nov. 30, 1870 = 5.29 miles, or	27,917.1 feet.	
Expended for the same under direction of City Engineer, including ordinary care and repairs		$112,412.60

The last-named sewer having been completed, its construction may be described as follows: From its outlet into Charles River to the gate-chamber it is 75 feet in length, built of wood 4 feet by 4 feet; the gate-chamber is built with brick walls 8 inches thick, bottom of chamber two feet below bottom of sewer, and the top is capped with granite, to which is properly fitted an iron cover. This chamber contains self-acting gates of most approved construction. From thence to the junction of Kirkland and Oxford Streets the sewer is 4 feet 6 inches by 4 feet, two rings of common brick, and thence to the end at Sacramento Street 3 feet 3 inches by 3 feet, one ring of common brick. At intersecting streets and intervening points there are constructed in all twelve manholes worked into the sides and arch of the sewer. The bottom of each, at its particular location, drops from one to two feet below the bottom of the sewer; the walls, 8 inches thick, gradually contracting till its top is covered with a granite coping and iron manhole cover. The benefit derived consists in the means which

they afford of entrance into the sewer, for the purpose of examination and cleaning, and for ventilation.

This sewer was commenced by Mr. Charles Linehan, under a contract executed on the 30th of March, 1869, and by the terms of said contract it should have been completed on the 30th of November following.

The doubts expressed in my last Annual Report as to its completion by said contractor have been fully realized. On the 28th day of June last Mr. Linehan was enjoined from proceeding further with the same, and its completion undertaken by direction of the Joint Standing Committee on Reservoirs and Drains. It was finished on the 30th of September following.

From the experience of its construction (heretofore of unexampled magnitude in Cambridge) valuable results may inure to the City. From it is fully illustrated the hazard to be encountered in the execution of work into which difficulties of treacherous formation and intervening obstacles enter, the true nature of which is not foretold. Divers unexpected results have occurred during the progress of the work: from Charles River to Chestnut Street, where quicksands were expected, for the larger portion of the distance favorable material in excavation was encountered; rock cutting was met unexpectedly; the material through the college grounds, and at greatest depth of excavation, was most favorable, requiring but little or no bracing; and through nearly the whole distance in Oxford Street it became necessary to overcome quicksands (where none were looked for), of such a nature as to require constant attention, nearly exhausting patience and perseverance in its control, by adapting it to the simple construction of a common sewer. For the entire distance of this part of the work to its full depth, sands only were met with, requiring close side bracing from the top and sheet piling for about every section of sewer laid, to secure from one to four or five feet in depth of the quicksand bottom. The drought of the present season has greatly facilitated the completion of this work under such circumstances, for in ordinarily wet seasons the difficulty and cost would have been enhanced. The rock encountered, amounting to 1,300 cubic yards, was removed by Mr. Linehan between the 15th

day of July, 1869, and 29th day of January, 1870, one hundred and seventy working days. For this unexpected service, notwithstanding its abrogation by contract, it was deemed by the committee in charge equitable that a gratuity be allowed the contractor, the amount to be fixed by arbitration: they therefore submitted this recommendation to the City Council. In accordance therewith the City has paid, in addition to the sum stipulated by contract, the sum of ten thousand two hundred and thirty-one dollars ($10,231).

The balance of said contract, unpaid at the time its completion was assumed by the City ($19,353.60), has been appropriated in the manner, and in such amounts for its completion, as deemed most proper by the Committee in charge, acting under the order of the City Council directing the construction of said sewer. As a suit is now pending relating to the matter, the exact cost, so far as it relates to the completion, and its condition, will be made up in detail, and presented in proper order and time.

No controversy will arise at this period of public improvement upon the advantages to be derived from properly constructed systems of drainage, nor will it require portrayal in vivid colors to convince the most sceptical resident in those sections of the city contiguous to the main trunk sewers which have been built this season of the great convenience and most beneficial sanitary results obtained from their extension and completion.

In this connection, I can but renew the suggestion made in former reports upon the necessity of constructing an outlet sewer through Harvard Street, from Columbia Street, terminating in a receiving basin to be built for the purpose on the flats between Main Street and Broadway.

This becomes important, not merely to afford facilities for drainage to those estates abutting upon said streets, but more particularly to relieve the overburdened outlets, — Front Street, Main and Washington Streets, and Hampshire Street, — thereby making more available the now objectionable system of drainage throughout the entire "Port," at least so far as may be done without reconstruction and undue cost. To meet this cost and other demands for drainage the coming year, liberal appropriation will be required, and should be continued.

I cannot refrain here from alluding to the pernicious speculations conducted by parties who bring into market for occupancy and dwelling purposes low sections of the city and marsh lands. These localities are rendered inviting by temporarily dyking tide-waters from their surface, laying out streets (expending the least possible amount in their construction), and dividing the remainder of their premises into lots of small size, which generally meet with ready sale.

Such localities have in some instances already become populous, and others are now tending to this result, the effect of which is that in time the City is asked to lay out and properly build the streets, and, what is more difficult, to construct drainage in such a manner as to guarantee protection to the occupants against the elements and flooding by tide-water. The usual and best known method in such cases is by the construction of self-acting tide-gates within the sewers or drain; but this is liable to accident, without constant care, and often leads to serious and perplexing results. The attention of the City Council is frequently called to cases of real distress, the City being appealed to as though responsible for the back flow of water into cellars and basements thus situated too low for good drainage. The authors of their present and future troubles, in devising such schemes of impossible grades and drains, or, in their greed of gain, disregarding them wholly, have perpetrated a fraud upon them, and diligently sowed the seeds of alarming evils and expense to the City in future. Warned by the example of Boston and its expenditure of millions to remedy such defects, and conscious of the unusual extent of such territory within our limits, we should use all the power of the City to watch and prevent the adoption of any improper grades by private parties within the city bounds. The City cannot guarantee protection in such instances; and I am inclined to believe that it may become necessary to wholly abandon the building of tide-gates in the trunk sewers, and compel occupants to adopt individual means of protection. I would respectfully suggest consideration upon this subject to the extent of soliciting legislative aid, and securing the same, if possible, so far as to enable the City Council to exercise discretionary powers in determining grades of lands of the nature above described, when dedicated to such purposes.

Streets.

Large and unusual expenditures upon the public streets and sidewalks the past season have in like ratio necessarily increased the duties and labors of the City Engineer, in determining and giving lines and grades for the same, and in the preparation of plans for new lines, &c.

The following streets have been improved, widened, or laid out and accepted as public streets, and grades established: —

Grade of Main Street established from West Boston Bridge to Harvard Square; profile furnished and on file.

Lines of North Avenue defined and grade established from Fitchburg R. R. Bridge to Alewife Brook; plan and profile on file.

Bridge Street widened, by taking 25 feet 9 inches from the estates abutting on the south side, between Craigie's Bridge and Cambridge Street, surveys made; plan and profile on file.

Grade of Follen Street established; profile on file.

North Avenue widened, by taking Leland estate at junction Milk Street; plan on file.

Mount Auburn Street widened between Brighton Street and Dunster Street, by taking land on south side; plan on file.

Clark Street laid out from School Street to Main Street, 40 feet in width; surveys and plan.

Essex Street widened between Main and Austin, ten feet on west side, and one foot on east side; plan on file.

Grade of Bridge Street established, from Craigie's Bridge to Cambridge Street.

Eliot Street laid out, lines defined, and widened, west side near Mount Auburn; plan on file.

Concord Avenue widened from Garden to Wyeth Street.

Grade of Magazine Street established; profile on file.

An additional purchase of land for Cambridge Cemetery.

Cambridge Street widened on south side; plan on file.

Portion of enclosed triangle at junction of Bridge and Cambridge Streets, taken for street purposes.

Elm, Highland, and Oak Streets are accepted streets, whenever certain conditions are complied with, in neither case as yet accomplished.

April 12th last an order was adopted by the Board of Mayor and Aldermen instructing the City Engineer, under the direction of the Committee on Roads and Bridges, to prepare plans of that portion of Concord Avenue lying between Vassal Lane and the city limits west. No directions have been received, and therefore no surveys have been made this season, as contemplated by said order.

Final action has not been taken with reference to the proposed improvement of Inman Street, by widening opposite Austin Street. An order was passed, August 10th, anticipating a change upon the lines submitted, in order to avoid the objections made by the remonstrants. No return of the plan prepared by the City Engineer has been made to this office, nor have the remonstrants appeared to indicate their desire in regard to it.

Early in October an order was passed respecting the expediency of laying out and constructing a street from Garden Street to Spruce Street, opposite Cedar Street, and the probable expense thereof. As no request or order has been received at this office regarding the necessary surveys and estimates, I presume that action upon the same was considered to be inexpedient.

Surveys of the Washington Street District, as contemplated by the City, under an act of the Legislature, passed June 12th, 1869, have been completed since my last Report, and the results in detail reported, with plan accompanying, to the honorable Board of Mayor and Aldermen, on the first day of June last. Notwithstanding that no action has been deemed proper the past season, no doubts can be entertained of the importance and benefit of this improvement to Cambridge when accomplished.

An order was passed by the Board of Mayor and Aldermen, on the 26th day of July last, "directing the City Engineer to make surveys and prepare plans of all the public ways in the city, to the end that all encroachments may be seasonably detected."

This order is receiving careful attention and execution at such times as other duties of the office will permit. Full and accurate surveys have been made of that portion of the city bounded by Cambridge Street, Broadway, Ellery, and Baldwin Streets, Beacon Street, Somerville, and North Avenue, and also, in nearly

complete order, all that portion of the city lying northerly of the Fitchburg Railroad to Somerville line, plans of which are in course of preparation, and will be completed at an early day.

It affords me much gratification to acknowledge the important and decided stand which the Board has taken the past season with reference to a proper enforcement of the ordinance relating to encroachment upon the public streets, and in efforts to remedy evils of the past. The exercise of such judicious care will, if continued, result in great benefit.

Concerning the case of John Towne & Son, on the west side of East Street, an order to remove the buildings which encroach was issued July 27th, giving sixty days' time to move in. As the encroachment yet remains, further action, as defined by the ordinance on this subject, is necessary. The importance and value of indicating upon the ground, by permanent stone monuments, all angles and all intersecting lines cannot be over-estimated. Twenty-nine stone bounds have been thus placed the past season, and the necessity of pursuing such a course hereafter should ever be recognized. No new street should ever be complete in its dedication and acceptance without this observance, nor the lines of old streets changed, except upon strict adherence to the same rule.

During the summer the matter of renumbering the streets of the city received attention, as recently reported to the City Council.

West Boston Bridge.

At the first of the municipal year discussion upon this bridge was renewed, a change of location for the draw insisted on by the Harbor Commissioners, and divers views presented to the City Council in convention assembled. Various plans and estimates were prepared at this office; but up to the present writing the old dilapidated drawbridge remains unchanged. In conjunction with the City Engineer of Boston, plans and specifications were afterwards prepared in detail, at the request of the Mayors of the two cities, acting as Commissioners under sections 6 and 7 of chapter 302 of the Acts of 1870.

Office.

Ample provision for the department of Engineering and Surveying has finally been made in commodious apartments at the City Hall, which afford ready means for an interchange of information requisite between the various branches of the City Government, with acceptable conveniences for committees and heads of departments requiring information from said office. During the past year an Assistant and one other person have been constantly employed, in addition to which nine others have been engaged for such time as their services were required. Four are now constantly employed in the office.

Total expenditures of the office for the municipal year last past, as may appear from the Auditor's books, including the salary of the Engineer, other help, stationery, drawing paper and materials, repairs on instruments, conveyance, office rent, &c., $6,880.70.

Respectfully submitted.

J. G. CHASE,
City Engineer.

ANNUAL REPORT

OF THE

TRUSTEES OF THE DANA LIBRARY.

In presenting their Thirteenth Annual Report to the City Council, the Trustees would express their gratification at the evident growth of the Library in the public regard, as is shown by the large increase of subscribers the past year, the number of books put in circulation being much in excess of any previous year.

The amount of funds received from dog licenses — returned to the City Treasury in pursuance of law, and devoted by the City to the Library — was $1,932.90. This, with a thousand dollars of the regular city appropriation, placed at the disposal of the Trustees a sum that has enabled them to add to the catalogue many expensive works, as well as works that were rare or curious, — not forgetting that every one must be unobjectionable in its morals, and to be commended for its utility in some branch of science, art, or literature, or entertaining or instructive to some one of the various classes of our people who subscribe to the Library.

The Trustees again perform a mournful duty in announcing to the City Council the death of one of their number, Mr. Gustavus A. Smart. Mr. Smart represented the Common Council upon this Board. The state of his health forbade any considerable activity in its service. But he will be remembered for his amiable character and the conscientious discharge of all public and private duties. He was a good man and a good citizen.

During the year five hundred and seventy-seven volumes have been added to the Library. Of these five hundred forty-nine were purchased out of the City's appropriation; four were received from Hon. Samuel Hooper; one from Geo. Fisher; one from J. S. Orne; Trustees Waltham Public Library, five; three from Minnie Harding, who also contributed eight unbound volumes of "Every Saturday;" one from Mr. Nathan Lincoln; fifty-three numbers of

Plays from W. V. Spencer. A Report and Bulletin from the Boston Public Library was received. Also, a pamphlet each from R. H. Dana, Hon. S. Hooper, F. A. Whitney, Wm. Davis, and C. Brooks.

Amount received from subscribers	$331.00
" " " fines	15.00
" " " sale of catalogues	27.70
	$373.70

All of which has been paid into the City Treasury.

Number of volumes given out	13,263
Weekly average	273
The largest number in any week being	389
" " " " " day "	181

As many works have been added during the year of great practical value to artists, mechanics, and those whose business or tastes lead to scientific investigations, it is hoped that they will avail themselves more generally than heretofore of the advantages of the Library.

The whole number of books belonging to the Library is forty-seven hundred and ten. We are highly gratified at being able to state that, at the recent examination, every book was accounted for. Not one has been lost or missing during the year.

The amount of the City's Appropriation was . . .		$2,932.90
Of this there has been expended, —		
For Salary of Librarian	$300.00	
" " " Assistant	41.00	
Rent and care of room	375.00	
Books and Stationery	705.91	
Bookcases	145.74	
Other Expenses	342.59	
		$1,910.24*

Respectfully submitted.

H. R. HARDING,
JOHN S. MARCH,
CHARLES DEANE,
W. W. WELLINGTON,
Trustees of the Dana Library

CAMBRIDGE, *Dec.* 28, 1870.

* $686.63 more expended since close of financial year.

REPORT

OF THE

TRUSTEES OF THE DOWSE INSTITUTE.

To the Honorable City Council of Cambridge:—

The Board of Trustees of the Dowse Institute would respectfully report that two courses of lectures or other exercises were given during the last season.

The first course consisted of Lectures by Charles Sumner, W. H. Niles, Wendell Phillips, Julia Ward Howe, and Edward E. Hale; of a Reading by George Vandenhoff, and a Concert by a Quartette of Singers.

The second course consisted of Lectures by George W. Curtis, Governor J. L. Chamberlain, N. E. Atwood, Josiah P. Quincy, and Daniel C. Eddy; of Readings by Frances M. Carter and Henry Nicholls, and a Concert by the Hutchinson Family.

The accompanying copy of the Annual Report of the Treasurer contains a statement of receipts and expenditures. The following is an abstract of said Report: —

Dr.

To paid for lectures, concerts, and readings. . . .	$1,425.00
" " " printing and advertising	50.99
" " " care of hall, door-keepers, &c. . . .	121.25
" " " stationery, stamps, &c.	6.00
	$1,603.24
To balance to new account	27.64
	$1,630.88

Cr.

By balance from last account	$73.88
" interest, city of Cambridge	600.00
" sale of tickets	957.00
	$1,630.88

Respectfully submitted.

CHARLES DEANE,
H. R. HARDING,
JOSEPH H. CONVERSE,
W. W. WELLINGTON,
JOHN C. DODGE,
} *Board of Trustees.*

CAMBRIDGE, *Dec.* 28, 1870.

REPORT

OF THE

TRUSTEES OF THE SANDERS TEMPERANCE FUND.

The Trustees of the Sanders Temperance Fund respectfully submit to the City Council their Sixth Annual Report for the financial year ending Nov. 30, 1870.

The Fund ($10,000) remains invested, as heretofore, in notes of the City, bearing interest at six per cent., and producing an income of six hundred dollars, which has all been paid to the Missionary.

At the quarterly meeting in April last, Mr. Samuel C. Knights was elected Missionary by the Trustees. The qualifications of Mr. Knights for this position are too well known to the City Council and to the whole community to need particular mention here. We have reason to believe that the results of his labors have proved eminently successful and beneficial. Temperance meetings have been held by him every week, and large numbers of persons have been induced to sign the pledge of abstinence from the use of intoxicating beverages. He has often visited the Police Court and the several station-houses, seeking to do all in his power to reclaim the unfortunate victims of intemperance. By his kindly and persuasive voice and manner, and by his intimate knowledge of the modes and habits of thought peculiar to those who have fallen into evil ways in this direction, he has been able to reach the understandings and to touch the hearts of many who would otherwise have continued to pursue the road to ruin.

As our population increases, the effects of intemperance become more apparent, even if they do not increase in a greater ratio than does the number of inhabitants. It is clearly the duty of all good men to do what they can to diminish this evil, and, if possible, to extirpate it. This may be an almost hopeless task, but it is none

the less obligatory upon us; and our gratitude is due to generous individuals, who, like the donor of this fund, have testified their good wishes and have performed good deeds, the tendency of which has been to reform the poor men and women who have too far indulged their appetite for strong drink.

We append to this the Report of the Missionary, in which he gives an account of his doings during his term of service.

Respectfully submitted.

H. R. HARDING,
A. H. SAFFORD,
JAMES H. HALL,
SEYMOUR B. SNOW,
} *Trustees of the Sanders Temperance Fund.*

CAMBRIDGE, *Dec.* 31, 1870.

REPORT

OF

SAMUEL C. KNIGHTS,

SANDERS TEMPERANCE FUND MISSIONARY.

To the Honorable the Board of Trustees of the Sanders Temperance Fund: —

GENTLEMEN, — I herewith submit a Report of my labors as agent of the Sanders Temperance Fund for the past year: —

I have endeavored to discharge the duties of my office by working in public and in private, by laboring jointly with others, and by individual efforts of my own.

In public I have held temperance meetings in Williams Hall on each Sunday evening, with the exception hereafter made, through the year: these meetings have been well attended. I have found able and instructive speakers willing to give their aid, who have addressed attentive audiences; and the meetings have been, without exception, of interest and successful. During the summer months the Hall was closed, and meetings held in the open air. Twenty-one of these meetings were held; and the audiences addressed by Mr. Frederick Goodfellow, Mr. Cyrus E. Morse, and myself. On Sundays I have visited the House of Correction at East Cambridge, where I have found willing listeners. The value of this labor can only be estimated, it cannot be measured: its results are not seen as in cases of individual reformation. In addition to holding public meetings, I have visited the Cambridge Police Court, on an average three times a week, seeking for drunkards, and the effect of drunkenness (and I found both), with a view to extend aid and relief where I thought it could be rendered. I have uniformly received kindness and courtesy at the hands of the Judge of the Court, the Chief of Police, and the Policemen of our city: to all I acknowledge my indebtedness, and return my thanks.

In a majority of the cases of drunkenness brought before the Court there is no better method than to let the law take its course. A short term in the House of Correction is usually more efficacious than any other means that can be applied: it has more force than any *mere words*, and sometimes sets an habitual drunkard to thinking in the right direction. It must be borne in mind that *very* few of those committed for drunkenness are of a class who attach any sense of shame to imprisonment for this offence: there is no wounded sensibility or sense of degradation to be taken into account. The restraint is effectual. For a time they are compelled to become sober and to *remain* so; and by taking drunkards in charge immediately upon their release from prison, before they have had time to get back to their old ways or among their old associates, I have been able to start them in the right direction, and to effect a thorough reformation, which I trust will last through life, in some who, if left to themselves or to moral restraint alone, would inevitably have died, as they were living, drunkards. I have devoted much time to cases of intemperance in families of respectable standing, where the Police would not be justified in interfering; where perhaps no direct violation of the laws against drunkenness could be shown, or at least not such a violation as would require the interference of the law, and yet where intemperance was doing its most deadly work. In these cases I have given advice, counsel, time. I have worked with them and for them, and aided them as best I might to throw off this habit. Some have become thorough-going temperance men: many, through social habits, have fallen into their old ways. Of the particulars of this work I cannot speak. If allowable, I could cite instances of reformation which amply repay all the labor and toil that has been expended in this cause.

Respectfully submitted.

SAMUEL C. KNIGHTS,

Agent of the Sanders Temperance Fund.

REPORT

OF

ENOCH J. HOWLETT,

MILK INSPECTOR.

To his Honor the Mayor, and the Aldermen of the City of Cambridge:—

The undersigned would respectfully submit his Third Annual Report for the year ending Dec. 1, 1870:—

The milk trade of the city is divided into three classes: 1st. Those dealers who sell from wagons or carriages. 2d. Those dealers who sell from their stores or shops. 3d. Those who keep cows, and sell to the families in their neighborhood.

There have been recorded the names and residences of dealers selling from their wagons and carriages since last Report .	11
There have been recorded the names of those dealers who sell from their stores or shops since last Report	52
There have been recorded names and residences of persons keeping cows since last Report	16
Whole number of dealers who sell from their wagons or carriages registered	42
Whole number of dealers who sell from their stores or shops registered	208
Whole number of persons keeping cows registered . . .	60
Whole number of cows kept by those persons registered . .	99

All places where milk is publicly sold in the city have been visited, and the milk inspected. I have promptly answered every call to inspect the milk left at the houses of the citizens.

The State has enacted laws to insure every family pure milk, and in accordance with law the city has placed within reach of

every citizen, free of expense, means of testing the quality of the milk delivered to them by the dealers. Milk has ever been considered an excellent, and in many families an indispensable, article of food; and a few facts may be of interest. Milk consists of certain fatty or oily particles, in solution, of caseine and of sugar of milk. The fatty matters do not exist in a free condition, but are enclosed in little globules, which rise to the surface on account of their being lighter than the liquid in which they float. It also contains a certain portion of mineral matter, which consists of phosphate of lime and phosphate of magnesia. The whiteness of milk is due to the opaque globules, which are suspended in it. A bluish tint indicates a small amount of cream; the whiter or the more opaque it is the more curd and butter it contains, and the richer it is. The quality of milk is better from September to November than at other seasons of the year, but the quantity is usually less at that time. Milk that is agitated or shaken up, as when sent by railroad, throws up less cream than that which has been less disturbed.

In general, the milk furnished to private families by our milkmen is free from adulteration, but often deficient in cream. The quality of the milk deteriorates with the grade of the customers, so that the poorer classes who buy in small quantities receive the poorest milk.

The standard of good rich milk is twenty degrees, while the average standard of the milk sold in the city is eighteen degrees.

Many of our milkmen receive their milk at the milk depot from the milk agent at East Cambridge, where are received daily some five to eight hundred cans. Others personally collect in their immediate neighborhood and adjacent towns, and bring it to the city in wagons and deliver it to their customers.

The milk producers have associated themselves together, with the hope of increasing the demand for good rich milk and advancing the price.

The milkmen have also an association, the object of which is to avoid soliciting each other's customers for supplying them with milk, and also to obtain their supply of milk from the milk agent, at a fixed price, and to regulate the price with the consumers.

In the stores, in undisturbed cans, the milk is found to be of the

same quality as that upon the counter for sale. It is the dealers' practice, at both large and small places, to sell their milk as they receive it from the milkmen. The storekeepers do not expect to make much, if any, profit on that article of trade, but feel obliged to keep it to accommodate their customers and to assist in increasing the business of the place; and I have known of its having been sold at considerable under cost as an inducement, or to draw trade to the store.

Respectfully submitted.

E. J. HOWLETT,

Milk Inspector.

REPORT

OF

SEALER OF WEIGHTS AND MEASURES.

To his Honor the Mayor, and the Aldermen of the City of Cambridge:—

The undersigned would respectfully submit his Second Annual Report for the year ending Dec. 1, 1870:—

During the year I have visited all stores, shops, manufactories, and places where scales, weights, or measures have been in use either for buying or selling, and have tried, proved, adjusted, and sealed all scales, weights, or measures found in use in said places.

At the last session of the Legislature, the following law in relation to sealing weights and measures was passed:—

Sect. 1. All persons using scales, weights, measures, or milk-cans for the purpose of selling any goods, wares, merchandise, or other commodities, shall have them adjusted, sealed, and recorded by the sealer of weights and measures in the city or town in which they reside or have their usual place of business, and shall thereafter be responsible for the correctness and exactness of the same; provided, however, that they shall have the right to have such scales, weights, measures, milk-cans, tested and adjusted at the office of the sealer of weights and measures whenever they desire to do so.

Sect. 2. The sealer of weights and measures in each city and town shall go once a year, and oftener if necessary, to every hay and coal scale, dormant, or other platform balance, within said city or town, that cannot be easily or conveniently removed, and test the accuracy of, and adjust, and seal the same.

Sect. 3. All persons using any scales, weights, measures, or milk-cans for the purpose of buying or selling any commodity, may have the same tested and sealed by the sealer of weights and meas-

ures in the city or town where they reside or have their usual place of business, at his office, whenever they desire to have it done.

SECT. 4. Whenever a complaint is made to a sealer of weights and measures, under oath, by any person, that he has reasonable cause to believe that any scale, weight, or measure used in the sale of any commodity within the city or town is incorrect, the said sealer shall go to the place where such scale, weight, or measure is, and test and mark the same according to the result of the test applied thereto; and if the same be incorrect and cannot be adjusted, the said sealer shall attach a notice thereto certifying the fact and forbidding the use thereof until the same has been made to conform to the authorized standard. Any person using any scales, weights, or measures, after a sealer of weights and measures has demanded permission to test the same, and has been refused such permission, shall be liable to the same penalties as if he had knowingly used a false scale, weight, or measure.

SECT. 5. All scales, weights, and measures that cannot be made to conform to the standard shall be stamped "Condemned," or "CD.," by the sealer of weights and measures; and no person shall thereafter use the same for weighing or measuring any commodity sold or exchanged, under the penalties provided in the case of the use of false weights and measures.

SECT. 6. Every sealer of weights and measures shall receive such compensation for his services as may be fixed by the city or town within which he is appointed, and no fees shall be charged for any official duty he may perform.

SECT. 7. Every city and town shall, within the first ten days of January and July in each year, advertise the several sections of this act by publishing them in some newspaper printed in such city or town, or by posting them up in one or more public places therein.

SECT. 8. This act shall take effect upon its passage.

Approved May 6, 1870.

It will be observed by the above that the sealer is in no case to charge fees for any official service he may perform, and that he is at all times to be accessible to those who may use scales, weights,

or measures, and that every dealer shall, before using any scales, weights, or measures, have them sealed; also, that they may call upon the sealer to test, adjust, or seal these scales, weights, or measures whenever they desire to have them done.

I was not officially notified of the passage of this law until the 13th of May; and during the days between the 6th and 13th of May I had collected in the First and Fifth Wards fees to the amount of twenty-seven dollars, all which I have returned to the several firms and persons of whom I had collected.

Many dealers say there is no need of examining weights and measures as often as once a year. My own experience has shown to the contrary, having found it necessary to visit places two or three times during the year by invitation of the proprietors.

As the services of the sealer have been, and of necessity will be, largely increased, it is hoped that a more suitable office will be provided for the better accommodation of the sealer and those of the citizens whose business calls them to the office of the sealer of weights and measures.

The following figures will show the number of places visited, and the number of scales, weights, and measures sealed through the year: —

Number of places visited	398
" " scales sealed	573
" " weights sealed	2762
" " measures sealed	1720
" " yard-sticks sealed	45
" " scales condemned	5
" " measures condemned	63
" " yard-sticks condemned	2

Schedule of City Property contained in Sealer's Office.

One set Avoirdupois Weights.
" Balance and Case.
" set Standard Dry Measures.
" " " Wine Measures.
" brass Yard Stick.

One working set Avoirdupois Weights.
" " " Dry Measures (copper).
" " " Wine Measures (copper).
" wooden Yard Stick.
" pair Try Scales and Case.
Twenty fifty-pound weights.
One Drill Stock and Drill.
" Hammer.
" Mallet.
" Wrench.
" Screw Driver.
" pair Nippers.
" " Cut Nippers.
" Brand, letter C.
" " two letter C.
Three Stamps, letter C.
Two Cases.
One File.
" Punch.
Half bushel of Flax Seed.

Respectfully submitted.

E. J. HOWLETT,
Sealer of Weights and Measures.

REPORT

OF THE

CAMBRIDGE WATER BOARD.

In obedience to the requisitions of an ordinance of the City, the Cambridge Water Board herewith present to the City Council their sixth

ANNUAL REPORT,

Embracing a statement of the extension of the Works during the present year, with the increase of the extension account therefor, their present condition, and an account of the receipts and expenditures, demonstrating that the additional receipts fully cover the additional expense for their enlargement.

The net cost of the Works, Nov. 30, 1869, was	$828,100.69
Expended for extension of the Works for the year ending Nov. 30, 1870	56,906.46
Total cost of the Works, Nov. 30, 1870	$885,007.15
Receipts from water rates for the year ending Nov. 30, 1870	$92,606.95
Receipts from water rates for the year ending Nov. 30, 1869	76,149.30
Increase of water rates in 1870	$16,457.65
Receipts from all sources for the year ending Nov. 30, 1870	$109,498.96
Receipts from all sources for the year ending Nov. 30, 1869	91,347.92
Increase of receipts in 1870	$18,151.04

Total Cash Receipts for the year ending Nov. 30, 1870		$109,498.96
Expended for care and repair account	$19,014.43	
Expended on supply account . . .	14,999.57	
Interest	49,704.00	
		83,718.00
Balance unexpended		$25,780.96

For a more detailed statement of the financial condition of the Works, we would refer you to the Report of the Water Registrar.

The Sinking Fund established for the final liquidation of the Water Bonds amounted on the first day of July, 1870, to $59,673.62.

During the past summer, Mr. Samuel W. Dudley was appointed Superintendent of the Works; and we are happy to say that he has more than met our highest anticipations, and we trust the City will long enjoy his eminently valuable services.

During the present month a change has been made in the Engineer at the engine-house; and the Works have been placed in charge of Mr. Edwin C. Brooks, who comes to us very highly recommended. He has not been in charge of the Works long enough to become entirely familiar with the whole routine of duty, yet we feel confident that he will meet the expectations not only of the Water Board, but of the City Council.

In the progress of the work the present year we have laid of

12-inch pipe	2,373	feet
10-inch pipe	63	"
8-inch pipe	1,605	"
6-inch pipe	14,398	"
4-inch pipe	15,031$\frac{6}{12}$	"
3-inch pipe	1,530	"
2-inch pipe	1,274	"
1$\frac{1}{2}$-inch pipe	180	"
1$\frac{1}{4}$-inch pipe	148	"

Total amount of pipe laid, 36,647$\frac{6}{12}$ feet, or about 7 miles.

The Report of the Superintendent gives a full description of the location of the pipes and of all branches of work done the present year, with a schedule of all the personal property belonging to the Works.

A new gate and gate-house have been built at the outlet of Fresh Pond, and flash boards have been erected on Alewife Brook where it passes under the Lexington Branch Railroad. These flash boards were rendered necessary, not only to secure the water flowing from Spy and Little Ponds by conducting it into Fresh Pond, but to enable the fish to escape from the pond to the ocean. There had been no water flowing from Fresh Pond for several months, while there was a constant flow from Spy and Little Ponds. By the dam at the railroad crossing the tide is effectually shut out from all the ponds, and the water from Spy and Little Ponds is carried directly into Fresh Pond. The result has been to secure a strong current of water into Fresh Pond, thus enabling the fish to escape, and, besides furnishing us our daily supply, raising the water in the pond about one half an inch per day.

The extreme drought of the past summer, which was a source of alarm to many of our citizens, and caused some anxiety in the minds of the Water Board, has nevertheless been the means of increasing our confidence in the capacity of Fresh, Spy, and Little Ponds to meet the demands of the City in any emergency.

Fresh Pond covers one hundred and eighty-three acres, and the area is increased, when the water is the highest, to about two hundred acres. Mr. F. M. Bardwell, by whom observations were made at Fresh Pond from Sept. 20, to Oct. 12, 1855, reports the discharge from Fresh Pond as averaging one million seven hundred and twenty-five thousand gallons per day. Careful observations were again made by scientific gentlemen in 1856, who reported the water-shed of Fresh Pond at twelve hundred acres. This tract, deducting the area of the pond itself, the evaporation from which is supposed to be equal to the rain-fall upon it, would give for the year 1856, during which the total rain-fall was fifty-four inches, one million six hundred and thirty-four thousand two hundred and fifty-six gallons per day. This calculation was based upon the supposition that four-tenths of the rain-fall finds its way

into the pond. "During the eight months, commencing March 24, 1856, during which these observations were made, the daily average discharge was two million three hundred and one thousand nine hundred forty-seven gallons."

"During the same period of time they report the average daily discharge from Spy and Little Ponds and Wellington Brook to have been, upon the same bases of water-shed and rain-fall, seven million four hundred and ninety-three thousand one hundred fifty-two gallons;" while the actual daily discharge by measurement was nine million seven hundred and twenty-eight thousand six hundred twenty-nine gallons. This estimate shows that the three ponds, estimating their water-shed to be the limit of their capacity, are capable of yielding some eight million gallons per day, and that about three-fourths of this quantity is to be furnished from Spy and Little Ponds. The difference between high and low water in 1856 was 2.11 feet. As we have a right to hold the water in the ponds to high water-mark, this power would enable us to store in Fresh Pond about one hundred twenty-six million four hundred thousand gallons, and as much more in Spy and Little Ponds.

If but one half of this amount be secured, it would be equal to about sixty days' supply at our present consumption.

But the experience of the past summer shows conclusively that the above estimate from the water-shed and rain-fall gives but a very imperfect idea of the real capacity of the ponds, clearly demonstrating that they are fed from a fountain independent of the rain-fall and water-shed for any given time, defying all our powers of computation.

On the second day of July the gate at the outlet of Fresh Pond was closed, and remained closed until November 21st., a period of one hundred and forty-one days. During this time the loss of water in the pond was $30\frac{2}{5}$ inches. When the pond is at an average height, it will produce 3,600,000 gallons per inch, but the surface of the water in the pond was so reduced the present year that it would only yield some 3,000,000 gallons. Estimating the water in the pond at 3,000,000 gallons per inch, we find a loss of 91,200,000 gallons. During the same period of time the rain-fall amounted to 9.85 inches. This, estimating that the evaporation from the pond is

equal to the rain-fall upon its surface and that four-tenths from its water-shed reaches the pond, which is the usual estimate, would give us 12.31 inches of water upon the pond, equal to forty-six million nine hundred and thirty thousand gallons, showing the total amount of water furnished by the rain-fall and the fall of water upon the pond to have been 138,130,000 gallons during the time the outlet was closed; while we had drawn from Fresh Pond during the same period 268,752,292 gallons, being an excess of 130,622,292 gallons, or nearly twice the amount the pond was capable of yielding, estimating its capacity by the rain-fall and water-shed for the same period of time. In the foregoing estimate we have assumed the general average for evaporation and absorption; but we have no doubt that in a very dry summer, like the past, the evaporation and absorption would greatly exceed that of an ordinary season; and so limited was the rain-fall for a large portion of this time that it produced no apparent effect upon the water in the pond. The rainfall was as follows: —

July,	1.26	inches,	and	the	pond	fell	$7\frac{5}{25}$	inches.
August,	2.03	"	"	"	"	"	$7\frac{17}{25}$	"
September,	1.81	"	"	"	"	"	$8\frac{1}{25}$	"
October,	3.76	"	"	"	"	"	$3\frac{12}{25}$	"
To Nov. 21,	1.05	"	"	"	"	"	$3\frac{15}{25}$	"

The only apparent effect upon the pond from the rain-fall appears to be from that in October. Some estimate may now be formed of the capacity of Fresh, Spy, and Little Ponds to meet the future wants of our rapidly growing city. The water-shed of Fresh Pond, exclusive of the surface of the pond, is about one thousand acres. The water-shed of the three ponds is about five thousand acres. Fresh Pond has yielded during the past summer about two million gallons per day. If the water from all three of the ponds had been secured, they would have yielded some nine million gallons per day. If we estimate the whole yield at only seven million gallons per day, that would allow for one hundred and fifty thousand inhabitants twenty-five gallons per day for each individual, leaving two million five hundred thousand gallons for

manufacturing and other purposes. We are of the opinion that the time has arrived when another set of pumps like the last should be obtained. The capacity of the old pumps is not sufficient to furnish the amount of water already required, and cannot therefore be relied upon with safety, except in very limited cases of emergency. The full capacity of the old pumps is much less than the daily consumption the present year; and as we have added more than six hundred new takers, the daily consumption will be largely increased hereafter; and as it will take nearly a year to procure a new set of pumps, completed ready for use, we deem it unwise to delay the matter any longer, and shall at the proper time ask an appropriation for that purpose.

All which is respectfully submitted.

JOHN SARGENT,
H. R. HARDING,
ROBERT DOUGLASS,
SAMUEL SLOCOMB,
C. W. KINGSLEY,
JOSEPH H. CONVERSE,
} *Cambridge Water Board.*

CAMBRIDGE, *Dec.* 14, 1870.

REPORT

OF

THE WATER REGISTRAR.

WATER REGISTRAR'S OFFICE,
CAMBRIDGE, *Dec.* 1, 1870.

To the Cambridge Water Board: —

GENTLEMEN, — The Water Registrar, in compliance with the provisions of the ordinance for the care and management of the Cambridge Water Works, respectfully submits his Annual Report for the year ending Nov. 30, 1870.

Receipts.

Water-rates	$92,606.95
Supply account for service pipe, laying, repairing, &c.	16,382.93
From Engineer for rent of house	150.00
From sales of old iron	359.08
Total cash receipts from all sources	$109,498.96

All of which has been paid into the City Treasury.

The increased amount of income for the financial year ending Nov. 30, 1870, over the previous year, is $18,151.04

Expenditures.

The expenditures for the care and management of the Works for the year ending Nov. 30, 1870, have been as follows: —

For care and repairs	$7,572.92
For pumping service	7,245.66
For office expenses	4,195.85
Total amount	$19,014.43

The expenditure on the extension of the Works for the year ending Nov. 30, 1870, was $56,906.46

The expenditure on supply account was 14,999.57

Supply Account.

Cash received on above account . . .	$16,382.93	
Now due	8,511.49	
		$24,894.42
There was reported due Dec. 1, 1869 .	$6,878.13	
Since expended	14,999.57	
		21,877.70
Balance in favor of account		$3,016.72

During the year the water has been turned off for non-payment of rates fifty-one times. Of this number forty-three have been let on, leaving a balance of eight still remaining off.

The following table exhibits the yearly revenue received from the sale of Fresh Pond Water since the purchase of the Works by the City : —

From April 28,	1865,	to Dec. 1,	1865	$32,367.19
" Dec. 1,	1865,	"	1866	40,073.27
" "	1866,	"	1867	52,733.62
" "	1867,	"	1868	63,747.42
" "	1868,	"	1869	76,149.30
" "	1869,	"	1870	92,606.95
				$357,677.75

STATEMENT

SHOWING THE NUMBER OF FAMILIES, STORES, MANUFACTORIES, &c., SUPPLIED WITH FRESH POND WATER TO DEC. 1, 1870.

5354 Families.
426 Hand Hose.
422 Stables.
241 Fire Hydrants.
133 Stores and Offices.
62 Stationary Engines.
42 Shops.

35 Boarding-houses.
28 Reservoirs.
27 Saloons.
21 School-houses.
20 Barber Shops.
20 Meat Markets.
18 Soap Works.
12 College Buildings.
11 Bake-houses.
10 Public Halls.
10 Public Drinking Fountains.
10 Machine Shops.
9 Greenhouses.
9 Churches.
9 Furniture Manufactories.
8 Lumber Wharves.
7 Coal Wharves.
7 Livery Stables.
7 Printing Establishments.
7 Blacksmith Shops.
6 Billiard Halls.
6 Banks.
6 Fish Markets.
5 Book Binderies.
5 Stone Yards.
5 Car Stables.
5 Lodging-houses.
4 Hotels.
4 Club Rooms.
4 Police Stations.
4 Post Offices.
4 Fire Engine-houses.
4 Glass Manufactories.
4 Nurseries.
4 Private Fountains.
4 Photograph Rooms.
3 Cattle Yards.

3 Laboratories.
3 Planing Mills.
3 Carriage Manufactories.
3 Stereotype Foundries.
3 Iron Foundries.
2 Private Schools.
2 Tallow Factories.
2 Cooper Shops.
2 I. O. of O. F. Halls.
2 City Stables.
2 Railroad Depots.
2 Pastures.
2 Masonic Halls.
2 Oil Factories.
2 Slaughter-houses.
2 Laundries.
2 Cigar Manufactories.
2 Brush Factories.
2 Tin Ware Factories.
2 Bacon Works.
2 Box Manufactories.
2 Organ Manufactories.
2 Carpenter Shops.
1 Almshouse.
1 Brass Foundry.
1 Bone Factory.
1 Brewery.
1 Boiler Manufactory.
1 Brick Yard.
1 Currier Shop.
1 Coffin Manufactory.
1 City Hall.
1 City Wharf.
1 Confectionery Manufactory.
1 Chemical Works.
1 Cemetery.
1 Divinity Hall.

1 Drain Pipe Manufactory.
1 Distillery.
1 Frame and Moulding Manufactory.
1 G. A. R. Hall.
1 Gas Works.
1 Gymnasium.
1 Henery.
1 House of Correction.
1 Lead Pipe Works.
1 Lard Works.
1 Museum of Comparative Zoölogy.
1 Marble Works.
1 Public Library.
1 Paper Collar Manufactory.
1 Rolling Mill.
1 State Arsenal.
1 Sausage Manufactory.
1 Skating Rink.
1 Sugar Refinery.
1 Swine Yard.
1 Vinegar Factory.

During the year thirteen meters have been applied to the premises of water takers, making the total number now in use sixty-eight. They are attached to a variety of establishments, as follows : —

WHERE ATTACHED.	SIZE OF METERS.					
	⅝ inch.	¾ inch.	1 inch.	1½ inch.	2 inch.	3 inch.
Bay State Glass Co.	. . .	. . .	. . .	. . .	1	. . .
Boston and Lowell Railroad Co.	. . .	. . .	1	. . .	3	. . .
Badger & Batchelder	. . .	. . .	. . .	1	. . .	. . .
Braman, Shaw, & Co.	. . .	. . .	. . .	1	. . .	. . .
Metallic Compression Casting Co.	. . .	. . .	2	. . .	. . .	. . .
House of Correction	. . .	. . .	. . .	. . .	1	. . .
John K. Hodgdon	. . .	. . .	. . .	. . .	1	. . .
Boston Chemical Works	. . .	. . .	. . .	. . .	1	. . .
Beal & Hooper	. . .	. . .	. . .	. . .	1	. . .
James McIntosh	. . .	. . .	1	. . .	. . .	. . .
North, Meriam, & Co.	. . .	. . .	. . .	. . .	1	. . .
J. P. Squire & Co.	. . .	1	. . .	. . .	1	. . .
Doe & Charmois	. . .	. . .	. . .	1	. . .	. . .
New England Glass Co.	. . .	. . .	. . .	. . .	1	. . .
Eagle Sugar Refinery	. . .	. . .	. . .	. . .	1	. . .
F. Draper & Co.	. . .	1	. . .	. . .	. . .	. . .
F. Geldowsky	. . .	. . .	. . .	1	. . .	. . .
Woodbury & Co.	. . .	. . .	. . .	. . .	1	. . .
Welch, Bigelow, & Co.	. . .	1	. . .	. . .	. . .	. . .
O. S. Bulloek	. . .	. . .	1	. . .	. . .	. . .
Thayer Club	. . .	1	. . .	. . .	. . .	. . .
Shawmut Iron Works	1	. . .	. . .	. . .	. . .	. . .
Williamson & Bartlett	. . .	. . .	1	. . .	. . .	. . .
H. O. Houghton & Co.	. . .	1	. . .	. . .	. . .	. . .
Cambridge Laundry	1	. . .	. . .	. . .	. . .	. . .
C. L. Jones & Co.	. . .	. . .	1	. . .	. . .	. . .
Boston Silver Glass Co.	. . .	. . .	1	. . .	1	. . .
Union Glass Co.	1	. . .	2	. . .	. . .	. . .
Boston Rolling Mill	. . .	. . .	. . .	. . .	1	. . .
S. M. Cofran	. . .	. . .	. . .	. . .	1	. . .
Edmund Smith	. . .	. . .	1	. . .	. . .	. . .
John Wilson & Co.	. . .	. . .	1	. . .	. . .	. . .
Reversible Collar Co.	. . .	. . .	1	. . .	. . .	. . .
B. P. Clark & Co.	. . .	. . .	1	. . .	. . .	. . .
John Reardon & Sons	. . .	. . .	1	. . .	. . .	. . .
Boston Stamping and Manufacturing Co.	. . .	. . .	1	. . .	. . .	. . .
Little & Brown	. . .	. . .	1	. . .	. . .	. . .
Cambridge Gas Light Co.	. . .	. . .	. . .	. . .	. . .	1
Lyman Kinsley, & Co.	. . .	. . .	. . .	. . .	1	. . .
George G. Page & Co.	. . .	. . .	1	. . .	. . .	. . .
Novelty Box Works	. . .	. . .	1	. . .	. . .	. . .
Curtis Davis	. . .	. . .	. . .	1	. . .	. . .
Brazier & Whittemore	. . .	. . .	2	. . .	. . .	. . .
James C. Davis	. . .	. . .	1	. . .	. . .	. . .
George Woods & Co.	. . .	. . .	. . .	1	. . .	. . .
Cambridge Stamping and Manufacturing Co.	2	. . .	. . .	. . .	. . .	. . .
Prospect House	. . .	. . .	. . .	1	. . .	. . .
Henry Thayer & Co.	. . .	. . .	. . .	. . .	1	. . .
Hancock & Greely	1	. . .	. . .	. . .	. . .	. . .
H. M. Clark	1	. . .	. . .	. . .	. . .	. . .
James B. Kent	. . .	. . .	1	. . .	. . .	. . .
Cambridge Co-operative Housekeeping Association	1	. . .	. . .	. . .	. . .	. . .
T. S. Huekins	. . .	. . .	1	. . .	. . .	. . .
Union Railway Co.	1	. . .	. . .	. . .	. . .	. . .
Day & Collins	. . .	. . .	1	. . .	. . .	. . .
Joseph Boynton	1	. . .	. . .	. . .	. . .	. . .
Mount Auburn Corporation	. . .	. . .	1	. . .	. . .	. . .
Mason and Hamlin Organ Co.	. . .	. . .	1	. . .	. . .	. . .

During the past year every building supplied with water has been visited. It is the intention that this inspection shall be equally thorough the coming winter, in making an examination of the fixtures, that any leaks in service pipes may be stopped, and that the many abuses in the use of the water which have become manifest during the past few years may be corrected.

Respectfully submitted.

A. F. FIFIELD,

Water Registrar.

REPORT

CONCERNING

THE ACCOUNTS OF THE WATER REGISTRAR.

In Cambridge Water Board,
Dec. 13, 1870.

The Committee appointed to examine the accounts of the Water Registrar for the financial year ending Nov. 30, 1870, herewith submit the following

REPORT:

Your Committee have examined the books and accounts of the Water Registrar, and compared them with the vouchers, and find that the same are correct in all respects.

Respectfully submitted,

SAMUEL SLOCOMB,
ROBERT DOUGLASS, } *Committee.*

REPORT

OF THE

SUPERINTENDENT OF THE WATER WORKS.

To the Cambridge Water Board:—

GENTLEMEN, — In compliance with the City ordinance, I herewith submit my Annual Report upon the general condition of the Water Works, for the year ending Nov. 30, 1870.

Pond.

A new dam and gate-house have been built, the present season, at the outlet of the pond; a substantial flash board has been placed at the outlet of Spy Pond, near the Lexington Branch Railroad, and also one at the outlet of Fresh Pond, near the same point, and a channel has been cut through above the flash boards, to turn the water of Spy Pond into Fresh Pond. A wooden culvert, 18 inches by 12 inches, has been laid through the lower end of Spruce Street, to carry the filthy water from the Brick Yards below the flash boards.

Engine House.

Every thing in and around the engine-house is in good order. An eight-inch pipe for conveying the exhaust steam has been laid from the boiler-room, under the railroad track, to the ditch on the east side of the pond; the ashes have been removed from the basement under the engine-house, and the walls on the inside have been banked up with clay, to dyke out the water. The roof of the engine-house, which was leaking badly, has been repaired, and is now perfectly tight; and lights of glass have been set in the windows, where any were found broken. There were 635,052,196 gallons of water pumped the past year, using 1,112,850 pounds of

coal. The average number of gallons pumped daily was 1,739,869, an average daily increase over the previous year of 122,384 gallons.

Force Main.

The force main has been in good order. Only two slight leaks at the joints have occurred on it during the year.

Reservoirs.

The reservoirs are in very good order. The joints of the cap-stones on both have been leaded, owing to the crumbling of the cement joints. In October, the large reservoir was thoroughly cleaned out, and all necessary repairs on it were made.

Distribution Pipes.

The distribution pipes, of which there are now about sixty miles, are in good condition. Of the leaks that have occurred in pipes, — seventy were at joints; twenty-four, at driving-cocks in main; twelve, at service pipes; nine, defective pipes; six, at aqueduct log; four, at cement pipes; three, at fire hydrants; three, at blow-off cocks; two, struck by picks; two, at plugs in ends of pipes; one, by settling of earth. Total, 136. The greatest number of leaks was on the old three and four-inch pipes, where joints were made of cement.

During the year the water was blown off from the ends of pipes sixty-eight times.

Gates.

There have been seventy-three new gates, set mostly on new lines of pipe. There are some sections of the city where more gates are needed on the old lines of pipe, as they have been frequently shut off the past year to repair leaks and to connect new lines of pipe, which causes considerable dissatisfaction among the takers. Sixty gate-boxes have been raised or lowered to conform to the new grades of streets, and six boxes have been taken out and replaced by new ones.

Hydrants.

The hydrants are all in good order throughout the city. During the year fifty have been added to the Works, most of them on new

lines of pipe. Nine hydrants have been raised entire, and fifteen boxes have been raised or lowered, as the grades of the streets required. Three hydrant boxes have been taken out, and replaced by new ones; and three hydrants that were broken have been removed, and new ones set in their places.

Meters.

Thirteen meters have been applied to the premises of water takers, making the total number now in use sixty-eight. Of this number, — ten are $\frac{5}{8}$-inch; five, $\frac{3}{4}$-inch; twenty-seven, 1-inch; seven, $1\frac{1}{2}$-inch; eighteen, 2-inch; and one, 3-inch size. They are attached to a variety of manufacturing establishments.

Drinking Fountains.

Ten drinking fountains have been set in different sections of the city as follows: —

On North Avenue.
In Cambridge Common.
" Harvard Square.
" Brattle Square.
" Haymarket Square.
At Junction of Main and Front Streets.
" " Cambridge and Hampshire Streets.
On Court Street, between Main and Broadway.
" East Street, between Cambridge and Bridge.
" Cambridge Street, near Fifth.

They are quite extensively used, and give general satisfaction to the public. Quite a large expenditure has been incurred in digging up and resetting some of them, where mischievous boys have put stones and sticks into them, obstructing the flow of water. By actual measurement, it has been found that the discharge from each fountain was 2,400 gallons for each twenty-four hours, and that the daily consumption for the ten fountains was twenty-four thousand gallons.

STATEMENT OF SERVICE PIPE LAID IN 1870.

Diameter in Inches.	Number of Pipes.	Length in Feet.	TOTALS.	
			Number of Pipes.	Length in Feet.
2	3	283	3	283
1½	6	1,051	6	1,051
1¼	9	963	9	963
1	40	3,302	40	3,302
¾	560	28,775	560	28,775
Aggregate			618	34,374

Making the total number of supply pipes . . . . 4,191.

STATEMENT OF LOCATION, SIZE, AND NUMBER OF FEET OF PIPE LAID IN 1870.

IN WHAT STREET.	Diameter in Inches.	Feet of Pipe.
Arlington	4	641
Acorn	4	130
Amory	4	517
Allston	4	108
Antrim	6	121
Allston	3	191
Arlington	6	366
At Engine House	8	85
Brighton	4	233
Brookline	6	445
Beech	6	428
Brattle	4	45
Brattle	6	976
Brattle	8	1208
Bridge and Water	6	569
Bedford	4	240
Buckingham	4	36
Banks	4	342
Bristol	3	84
Concord Avenue	6	1183
Cedar and Lane	6	1016
Cedar and Lane	4	272
Crane	4	474
Concord Avenue	4	21½
College Grounds	4	397
Church	4	120
Clark	3	63
Dyke	4	127
Dover	3	90

STATEMENT OF LOCATION, SIZE, &c. (*continued*).

IN WHAT STREET.	Diameter in Inches.	Feet of Pipe.
Eustis Place	3	265
Fourth	4	225
Fayerweather	12	725
Fayerweather	4	375
Fresh Pond Lane	4	360
Flagg	4	303
Frisbie Place	4	315
Fourth and Otis	4	15
Fourth and Otis	3	12
Follen	3	130
Garden	6	264
Garden	4	12
Gore	4	4
Hampshire	4	54
Howard	4	307
Horace	4	274
Hampshire	12	109
Hampshire	6	957
Houghton	6	240
Irving Court	3	160
Jay	4	151
Jefferson and Rideout	4	588
Kinnard	4	401
Maple Avenue	6	591
Maple Avenue	4	522
Mount Auburn (East of Brighton)	4	270
Mount Auburn (Cemetery to Railroad Stable)	4	995
Mount Auburn (Cemetery to Railroad Stable)	6	76
Mount Auburn	6	814
Mount Auburn	4	18
Magazine	6	603
Mill	4	644
McCabe Place	3	222
Norfolk	4	214
Norfolk	6	634
Norfolk	3	70
Ninth	6	176
North Avenue	6	1637
North Avenue	4	68
Oxford	12	1034
Oxford	10	63
Oxford	8	312
Oxford	4	281
Orchard	6	358
Otis	4	150

STATEMENT OF LOCATION, SIZE, &c. (*continued*).

IN WHAT STREET.	Diameter in Inches.	Feet of Pipe.
Perry	4	130
Putnam	4	520
Putnam Place	4	291
Prescott	4	225
Prospect	4	75
Pearl at East Perry	4	35
Pine	4	622
Porter	4	286
Reservoir	12	505
Rideout	4	162
Roseland	4	95
Roseland	3	117
Sparks	6	750
Sparks	4	56
Somerset Place	1½	180
Sparks Street Court	4	300
Sparks Street Court	3	18
Spring and Second	4	35
Thorndike	4	49
Tannery Lane	2	1274
Thankful Court	1¼	148
Tuttle	6	455
Tuttle	4	8
Third and Gore	3	23
Third and Thorndike	3	41
Vine	4	302
Winthrop	4	223
Wallace	4	225
Ward	4	456
Willard	6	825
Willard	4	18
Willow	4	332
Wyeth	6	720
Wyeth	4	14
Ware	4	323
Ware	3	44
Washington Avenue	6	194

GATES.

IN WHAT STREET.	Number.	Diameter in Inches.
Acorn	1	4
Allston	1	3
Arlington	1	6
Arlington	1	4
Brookline	1	6
Beech	1	6
Brattle	1	6
Brattle	1	4
Brattle	1	8
Bridge and Water	1	4
Bridge and Water	1	3
Banks	1	4
Bristol	1	3
Crane	1	4
Concord Avenue	1	6
Fayerweather	1	12
Fayerweather	1	4
Fresh Pond Lane	1	4
Frisbie Place	1	4
Fourth and Otis	1	4
Fourth and Otis	1	3
Gore	1	4
Howard	1	4
Hampshire	1	6
Irving Court	1	3
Kinnard	1	4
Maple Avenue	1	6
Mount Auburn	1	4
Mount Auburn	1	6
Magazine	1	6
Mill	1	4
McCabe Place	1	3
Norfolk	3	4
Norfolk	1	3
Ninth	1	6
North Avenue	2	6
North Avenue	1	4
Oxford	1	12
Oxford	5	6
Oxford	1	8
Oxford	1	4
Putnam	1	4
Prescott	1	4
Prospect	1	4
Pearl at Auburn	1	4

GATES (*continued*).

IN WHAT STREET.	Number.	Diameter in Inches.
Pine	2	4
Porter	1	4
Quincy	1	4
Reservoir	1	12
Reservoir	1	4
Second at Court	1	3
Sacramento	1	6
Thorndike	1	4
Tuttle	1	6
Third and Gore	1	3
Third and Thorndike	1	3
Vine	2	4
Winthrop	1	4
Winthrop	1	3
Wallace	1	4
Ward	1	4
Willard	2	6
Willow	1	4

BLOW-OFF PIPES.

IN WHAT STREET.	Number.	Diameter in Inches.
Acorn	1	1½
Allston	2	1½
Antrim	1	1½
Brighton	1	1½
Brookline	1	1½
Beech	1	1½
Bedford	1	1½
Buckingham	1	1½
Concord Avenue	1	1½
Cedar and Lane	2	1½
Crane	1	1½
College Grounds	1	1½
Church	1	1½
Clark	1	1½
Dyke	1	1½
Dover	1	1½
Fayerweather	1	1½
Fresh Pond Lane	1	1½
Flagg	1	1½
Howard	1	1½
Horace	1	1½

BLOW-OFF PIPES (*continued*).

IN WHAT STREET.	Number.	Diameter in Inches.
Houghton	1	1½
Jay	1	1½
Jefferson and Rideout	1	1½
Kinnard	1	1½
Mount Auburn	1	1½
Mill	1	1½
McCabe Place	1	1½
Orchard	1	1½
Perry	1	1½
Putnam Place	1	1½
Prescott	1	1½
Rideout	1	1½
Roseland	1	1½
Sparks Street Court	1	1½
Vine	2	1½
Winthrop	1	1½
Wallace	1	1½
Willow	1	1½
Washington Avenue	1	1½

RECAPITULATION.

2,373 feet	12-inch pipe.
63 feet	10-inch pipe.
1,605 feet	8-inch pipe.
14,398 feet	6-inch pipe.
15,031½ feet	4-inch pipe.
1,530 feet	3-inch pipe.
1,274 feet	2-inch pipe.
180 feet	1½-inch pipe.
148 feet	1¼-inch pipe.

GATES.

3	12-inch.
2	8-inch.
21	6-inch.
36	4-inch.
11	3-inch.

BLOW-OFF PIPES.

42	1½-inch.

STATEMENT

OF STOCK ON HAND, EXCLUSIVE OF TOOLS.

1	36-inch cast-iron pipe.
2	24-inch cast-iron pipes.
4	20-inch cast-iron pipes.
2	16-inch cast-iron pipes.
81	12-inch cast-iron pipes.
3	10-inch cast-iron pipes.
3	6-inch cast-iron pipes.
300	4-inch cast-iron pipes.
1	24 × 12-inch cast-iron T.
1	20 × 12-inch cast-iron T.
2	12 × 6-inch cast-iron T's.
5	12 × 4-inch cast-iron T's.
5	8 × 4-inch cast-iron T's.
15	6 × 6-inch cast-iron T's.
14	6 × 4-inch cast-iron T's.
10	4 × 4-inch cast-iron T's.
4	4 × 3-inch cast-iron T's.
4	4 × 3-inch cast-iron T's.
1	20 × 6-inch cast-iron cross.
5	12 × 6-inch cast-iron crosses.
6	12 × 4-inch cast-iron crosses.
1	8 × 6-inch cast-iron cross.
23	6 × 6-inch cast-iron crosses.
18	6 × 4-inch cast-iron crosses.
28	4 × 4-inch cast-iron crosses.
1	24-inch cast-iron sleeve, clamp.
1	20-inch cast-iron sleeve, clamp.
1	16-inch cast-iron sleeve, clamp.
4	12-inch cast-iron sleeves, clamp.
4	12-inch cast-iron sleeves, whole.
2	10-inch cast-iron sleeves, clamp.
6	10-inch cast-iron sleeves, whole.
8	8-inch cast-iron sleeves, whole.
10	6-inch cast-iron sleeves, whole.

6	4-inch cast-iron sleeves, clamp.
4	3-inch cast-iron sleeves, clamp.
2	12 to 8-inch cast-iron reducers.
5	12 to 6-inch cast-iron reducers.
3	10 to 8-inch cast-iron reducers.
3	10 to 6-inch cast-iron reducers.
24	6 to 4-inch cast-iron reducers.
5	6 to 3-inch cast-iron reducers.
3	12-inch cast-iron bends.
10	10-inch cast-iron bends.
2	6-inch cast-iron bends.
7	4-inch cast-iron bends.
3	3-inch cast-iron bends.
7	cast-iron caps.
6	cast-iron offset pipes.

20 gate-boxes, 14 hydrant bolts, 11 hydrant waste-cocks, 2 gate frames and covers, 2 2-inch stop-cock covers, 42 wooden plugs, different sizes, 3 blow-off goose necks, 25 pounds hemp-packing, 3 blow-off cocks, 14 blow-off pipes, 118 caps for blow-off pipes, 43 blow-off covers, 76 blow-off caps, lot of old iron, 3,000 feet treated lumber, 500 feet spruce lumber.

Meters. — In shop: 3 2-inch, 3 1½-inch, 8 1-inch, 2 ¾-inch, 5 ⅝-inch.

Galvanized Pipe. — 106 feet 2-inch pipe, 92 feet 1½-inch ditto, 511 feet 1¼-inch ditto, 165 feet 1-inch ditto, 220 feet ¾-inch ditto, 315 feet ½-inch ditto.

For Service Pipe. — 2 2-inch cocks, 2 1½-inch ditto, 3 1¼-inch ditto, 25 1-inch ditto, 1 ¾-inch ditto, 1 1½-inch corporation cock, 11 ¾-inch ditto, 1 1¼-inch drive cock, 65 ¾-inch ditto, 4 1-inch stop and waste cocks, 26 ¾-inch ditto, 4 ½-inch ditto, 1 1-inch hose bibb cock, 11 ¾-inch ditto, 39 ½-inch ditto, 12 ½-inch plain bibb cocks, 8 ¾-inch garden hydrant cocks, 50 1-inch street elbows, 45 ¾-inch ditto, 3 2-inch elbows, 24 1½-inch ditto, 20 1¼-inch ditto, 12 1-inch ditto, 18 ¾-inch ditto, 20 ½-inch ditto, 3 2-inch T's, 4 2 × ¾-inch ditto, 12 1½-inch ditto, 16 1½ × ¾-inch ditto, 12

1¼-inch ditto, 12 1¼ × ¾-inch ditto, 12 1-inch ditto, 18 1 × ¾-inch ditto, 39 ¾-inch ditto, 39 ¾ × ½-inch ditto, 20 ½-inch ditto, 2 2-inch iron unions, 4 1½-inch ditto, 4 1¼-inch ditto, 16 1-inch ditto, 18 ¾-inch ditto, 3 1-inch brass unions, 3 ¾-inch ditto, 15 1-inch air chambers, 29 ¾-inch ditto, 6 ½-inch ditto, 56 ¾-inch hose nipples, 9 1-inch solder nipples, 9 ¾-inch ditto, 40 2-inch couplings, 6 1½-inch ditto, 6 1¼-inch ditto, 5 1-inch ditto, 24 ¾-inch ditto, 40 ½-inch ditto, 12 2-inch nipples, 6 1½-inch ditto, 24 1¼-inch ditto, 36 1-inch ditto, 72 ¾-inch ditto, 84 ¾-inch ditto long, 26 guide pipes for stop-cocks, 123 covers for guide pipes, 12 shoes for guide pipes, 10 2 × 1½-inch bushings, 6 2 × 1¼-inch ditto, 4 2 × 1-inch ditto, 4 1½ × 1¼-inch ditto, 6 1½ × 1-inch ditto, 22 1 × ¾-inch ditto, 55 ¾ × ½-inch ditto, 29 1¼ × 1-inch ditto, 1 1¾-inch plug, 1 1½-inch ditto, 3 1¼-inch ditto, 12 1-inch ditto, 18 ¾-inch ditto, 22 ½-inch ditto, 3 ½-inch caps, 114 socket wrenches, 9 ditto long, 6 ditto with handles, 10 spring hydrant handles, 4 ⅝-inch bolts, with nuts and washers, 30 washers, 100 pounds lead.

TOOLS.

At Pipe Yard. — 1 stove and water boiler, 1 large boom derrick, 1 hand-geared derrick, 1 small derrick, 4 sets caulking tools, 4 iron bars, 2 furnaces (complete), 3 sledge hammers, 3 axes, 3 hatchets, 10 lanterns, 3 tool chests, 10 wheelbarrows, 40 feet rope, 1 binding rope.

Stable. — 1 horse, 1 Concord wagon, 1 truck wagon, 1 express wagon, 1 light wagon, 1 pung, 2 sets harness, 1 blanket, 1 halter, 2 whips.

In Shop. — 1 pair platform scales, 1 grindstone, 4 garden hydrant wrenches, 4 pairs rubber boots, ½ ton coal, 1 pair 3-inch pipe tongs, 1 pair 2½-inch ditto, 2 pair 2-inch ditto, 5 pair 1½-inch ditto, 4 pair 1¼-inch ditto, 2 pair 1-inch ditto, 1 pair ¾-inch ditto, 41 picks, 23 shovels, 10 ditto (worn out), 17 rammers, 19 gate-wrenches, 2 hydrant goose necks, 6 water-pails, 4 screw-drivers, 1 set drilling tools, 2 hatchets, 3 augers, 2 hand-carts, 3 bench vises, 5 crow-bars, 3 drill hooks, 2 ratchets, 2 plates and dies, 2

plates without dies, 3 pipe cutters, 5 monkey wrenches, 2 long handle fork hoes, 1 scroll plate with dies 2 × 1¼-inch, 1 ditto 1 × ½-inch, 1 set drills and taps 2 × ¼-inch, 3 hand saws, 5 drills, 2 taps, 2 paving hammers, 1 axe, 1 hand hammer, 1 ratchet wrench, 1 jointing set, 4 trowels, 4 oil cans, 3 window washers, 100 feet rubber hose, 3 tunnels, 1 gallon measure, 1 pipe brush 12 inch, 1 steel pipe scraper, 3 oil-feeders, 1 cask cement, 4 tape measures, 1 pitchfork, 2 spirit levels, 300 feet thawing pipes, 1 cylinder stove, 1 square, 8 chains, 20 pounds rubber packing, 2 nut wrenches, 1 copper pump, 2 snow-shovels, 1 beetle.

At Reservoir. — 12 brooms (old), 4 water-pails, 3 iron bars, 3 gate wrenches, 6 iron settees, 1 step-ladder, 1 hammer, 1 oil-can and oil, 1 scoop net.

At Pond. — 2 globe lamps, 1 hand lamp, 1 lantern, 1 thermometer, 24 pounds rubber valves 9-inch, 9 pounds ditto 5-inch, 9 pounds gaskets 36-inch, 13 pounds Martin's packing, 5 pounds ditto (old), 10 pounds hemp packing, 26 pounds cotton waste, 12 pounds Rem's packing, 50 sheets rubber, 2 oil-cups, 1 endless chain fall, 2 coal hammers, 1 drill brace, 1 hand vise, 1 bench vise, 10 pounds Babbitt metal, 10 pounds soft solder, 50 pounds old felting, 2 sledge hammers, 9 eye bolts, 19 socket wrenches, 12 bolts 1-inch, 18 bolts 1¼ to ⅝-inch, set tools for shoulder heads, 2 jack screws, 2 die plates, 2 sets dies, 2 sets taps, 13 pair pipe tongs, 3 monkey wrenches, 12 iron wrenches, 2 ratchets, 1 breast drill, 12 cold chisels, 12 caulking tools, 20 drills, 24 old files, 6 iron bars, 12 valve springs, 150 pounds old bolts and nuts, 15 gallon oil-can and oil, 8 small oil-cans, 34 elbows (different sizes), 1 can and kerosene oil, 12 T's (different sizes), 30 nipples (different sizes), 1 firkin of tallow, 1 ladle, 5 globe valves, 3 rat-traps, 40 feet pipe (different sizes), 1 scythe, 6 bars soap, 5 pounds red lead, 8 pounds white lead, 2 hand planes, 3 hand saws, 1 square, 1 drawing knife, 12 chisels, 8 gouges, 10 bits, 1 bit stock, 3 broad adzes, lot emery paper, 4 pounds sheet brass, 8 pounds screws, 1 tool-chest, 3 water-pails, 1 water-pot, 1 pair platform scales, 1 wheelbarrow, 4 ladders, 1 forge and anvil, 8 pairs blacksmiths' tongs, 100 pounds bar iron, 2

pairs rubber boots, 1 axe, 7 shovels, 1 hoe, 1 ice chisel, 30 pounds lead, 5 pounds zinc, 100 feet rubber hose, 2 4-tine forks, 50 pounds cut nails, 10 yards felting, 2 fire hoes, 2 pokers, 2 bars, 2 brooms, 1 grindstone, 2 boats, 1 raft, 1 cast-iron roller, 1 stencil plate and letters, 376 tons soft coal, 45 tons hard coal.

Respectfully submitted.

S. W. DUDLEY,

Superintendent.

REPORT

OF

THE SCHOOL COMMITTEE FOR 1870.

The Report of the Committee of 1869 opens with a reference to the numerous changes in the membership of the Board which had occurred during that year, and to their unfavorable effect.

We are happy to state that for the current year thirteen of the fifteen original members unite in the Annual Report, and that the schools have not suffered during the past year by unnecessary resignations in this Board.

The last Report called attention to the "limited financial power of the Committee, and its consequences."

The opinions expressed at that time seem to have received considerable attention during the year now ending; and although we are still working under the same system and suffering more or less from the legal and constitutional embarrassments of which complaint was made, there has been an amount of well-meant co-operation between the Board and the other departments of the City Government, which has gone far to relieve the evils from which the Committee last year reported the schools to be suffering.

In the matter of school accommodation, for example, important efforts have been made in the year past to meet the deficiency. The Committee would refer for fuller statements under this head to the Report of the Superintendent of Schools, which is printed herewith. We may, however, say in general that two new Primary buildings have been erected and are now nearly completed. Considerable additions and repairs have been made. Ground has been purchased for the erection of a building to accommodate the

Harvard Grammar School. The plans have been completed and the contracts signed, and the work is to commence on them early in the spring.

The Committee are, however, obliged to report that there yet remain embarrassments and delays which their "limited financial powers" prevent them from reaching, and which frequently cause a large amount of disturbance in the schools.

Sudden calls are made for apparently small but exceedingly necessary repairs here and there. It may be nothing larger than a bolt broken in a door, panes of glass out of the windows, or something wrong in the furnace or the flues. But the want, however small it may be, is often large enough to result either in loss of time in the instruction of the classes, or in their continued exposure or discomfort. Not unfrequently whole schools have to be dismissed, and several hundred children sent home, for no other reason than a break somewhere in the circuitous ways by which the Committee are compelled to reach the case.

The arrangements for warming and ventilating many of the rooms and buildings continue to provoke loud complaint. The Committee have no power but that of raising a protest. Their hands are tied by statute.

These remarks are not made in a spirit of complaint against the City Council, with whose various committees they have been in most cordial co-operation. The difficulty is not one of persons, but of system. The School Board is wisely constituted by statute a permanent body. One third only of its members retire each year. The City Council is chosen anew each year; and, however excellent the intentions of the incoming City Government may be, there is no system of co-operation to guide them. They require time to examine the ground, to form their opinions of what is required, and meantime the important interests of the schools have to depend upon the good sense and public spirit of individual officers.

It may be that the public good requires the present statute, which commits the administration of the public property to the City Council, to remain unchanged. It may be true that the men who are best fitted to conduct the public education are not the best to manage the pecuniary affairs of the school system, and that the

introduction of any considerable financial responsibility into the jurisdiction of the School Committee would tend to make a seat in it a political prize, and so introduce those political considerations into the choice of its members from which we believe it should at all times be carefully guarded.

But such reflections as these do not imply that the Board are to have no voice nor power in the regulation of such matters as those to which we refer. It will hardly be pretended that the statute contemplates the erection of school-houses without the concurrence and co-operation of the Committee, or that it creates a state of things in which the Committee are not sure of being able to open their schools every day in the term, or to carry forward the public instruction in them without embarrassment.

The public good requires *a system of co-operation*. As long as the connection between the Board and the custodians of the school property is only made, as now, through a Committee who proceed according to their own ideas and at their own pace, there will be complaint. There should be some permanent rules to regulate the matter. Some things, of slight importance financially, might be conceded by mutual agreement to the charge of the School Committee; and a systematic plan of co-operation be arranged to fix the responsibility of regulating at least such matters as require immediate attention on some official who can be reached without loss of time and without great trouble.

THE HIGH SCHOOL.

The current year has been one of progress and of marked success in this institution. The staff of officers has not been increased in number, but has been changed by the appointment of Mr. L. R. Williston Head Master, and of Miss Gleason to succeed Miss Child, who in the autumn resigned. The Committee will not say that the school will never in the future attain a higher efficiency than it has at present. They hope that it will. But they are confident that it has never been more worthy of patronage than now. It is a rare felicity that we were able to recall to its administration a master who had once before given it such excellence.

The course of study has been raised to the standard to be required hereafter for admission to Harvard College, and in consequence lengthened to five years. Work on this scale has begun, but it is evident that some time must elapse before the new system will be fully inaugurated. In the shorter, or English course some changes may be required to adapt it more thoroughly to the work to be done. The additional year which is now thrown into the High School course is not designed to constitute a year's delay in entering college. But to prevent it from having this result some measures will have to be adopted to give Grammar scholars an opportunity to come forward more rapidly.

It is hoped that this subject will receive the attention of the Committee during the coming year. Possibly the Boston plan, by which active scholars can advance their standing and complete the Grammar School work earlier than their less diligent or less capable companions, would be the best.

Under the present system it is hardly possible for scholars under fourteen years of age to enter the High School. To those who are fitting for college many of the Grammar School studies are unnecessary, as the same knowledge would be gained afterwards in their subsequent studies and in a better way. Might not capable boys of the age of twelve years, wishing to take the college course, be allowed to apply for admission to the High School upon passing a satisfactory examination, and in case of success be excused from the last year in the Grammar School?

The amount of work done by the teachers in the High School is already as great as can be performed by the number now employed. Should the school increase, as it is likely to do, another teacher will be required. The instructors are now too much occupied to find time or strength for the proper use or care of the Library, and the result has been that it has not been made as useful as so valuable a collection should be, and moreover it has necessarily been managed in a way which increases the risk of loss. The actual number of teachers employed is the same as for some years past, and one less than were in service during the mastership of Mr. Rolfe.

It may be added to what has been said in reference to the amount of work done by the teachers in this school, that the higher

the studies advance the more preparation the instructor requires. The Committee expect of a teacher in the High School more work out of hours than is required in the other schools. They are expected to remain for consultation every day as long as is necessary; and, although they are not prohibited from the instruction of private pupils, they are expected to give their first and fresh energies to the school.

In the year 1868, Saturday sessions were resumed in the High School, and continued in operation for two years. The gentlemen who had special charge of the school became satisfied however, after longer trial, that it was inexpedient to continue them; and they have been abolished. The amount of work done or attempted in them was not considerable. They were considered by the pupils an invasion of the school time for recreation, and appeared to discriminate against the High School as compared with the Grammar Schools. And, moreover, it is a principle that the higher the quality of the work which is to be done the more recreation is required. Under the present arrangement the scholars devote themselves more zealously to their duties, and the master has been able to distribute the work which was formerly done on Saturday among the other days of the week. There is therefore no loss in the amount which is really accomplished.

In addition to what has been mentioned the condition of the floors in the High School building require notice. They were laid down with spruce, — hard pine being out of market at the time on account of the closing of the Southern ports. They are splintering badly, and the whole building will require to be refloored with hard pine very soon.

THE TRAINING SCHOOL.

This school has been in operation about one year, and may now be said to have passed through the experimental stage and settled down to its recognized work as an established part of our educational system.

It was opened in February, 1870, with a very large class of young ladies, and was intrusted to a committee of one from each ward in the city, on a plan whose general outlines only were fixed,

and the details of which it was presumed the large and extraordinary committee in charge of the enterprise were empowered to settle as it became clear what was required.

The original plan contemplated the appointment of a Principal and Assistant; and it was believed that the young ladies of the Training Class would themselves be able to conduct the instruction of the Primary classes in the building, under the general direction of Miss Munroe; while the Principal, Mrs. Sullivan, was to be occupied mainly with the young ladies of the class in training. It was supposed at this time that the benefits to be derived from the school would be confined in the main to the Training Class, and that they would receive them from the three sources, of practice in the Primary rooms, instruction in theory and practice by the Principal, and from occasional substitution in other schools.

The Principal and her Assistant, although from the first they doubted the wisdom of some parts of this plan, devoted themselves generously and earnestly to it, and labored with all their might to make the experiment a success. It was found however, after several months of trial, that the plan was defective. The Primary classes could not be managed by the young ladies as was attempted. The scholars understood very quickly the difference between them and permanent teachers, and could not be made to respect their authority. And the frequent changes required, to give every one her due proportion of practice in teaching, seemed to doom the classes to be instructed by teachers in the first and most inexperienced stage. As soon as they acquired a little experience and control of the room, and gave promise of doing well, the turn of another would begin, and the round of inexperience would have to be repeated.

In addition to the injustice which was thus done to the class, the Committee found by careful observation that the young ladies themselves did not improve under this method as they should. It was found that they needed constant supervision. They had no models of instruction before them, — no standards and no ideas,— and required in their practice the continual presence of a competent person to direct them and to form their ideas and habits by her own example.

These results were duly communicated to the Board; and at the opening of the present school-year, in September, the Committee were able to take a first, and as it has proved a sufficient, step toward the correction of these evils by appointing two additional Primary teachers, — one for each vacant room.

There has been no trouble since. The appointment of these teachers had the further advantage of enabling the Committee to recommend the Board to discontinue the one daily session in the Primary classes of this school, which had been necessary at first, and to re-establish them in agreement with the hours of the other Primaries.

As the school is now conducted, the young ladies of the Training Class have the advantage of as much actual practice in the school-room as they require; but it is always practice under the eye of a competent and paid teacher in charge of the room, whose assistants they are for the time being. In this way the discipline of the room is perfectly maintained. The young ladies have the model constantly before them, and are not allowed to drill themselves into bad habits.

The principle on which the practice of the Training Class is now conducted may therefore be said to be that of practice under constant and competent supervision.

The class are not, however, occupied wholly in such practice or observation in the school-room. They receive daily lessons in theory and practice from the Principal. They are carefully instructed in the ideas which apply to the management of classes and of a school-room. They are taught how to observe and how to teach.

Their hours of attendance are wholly in the morning from 9 A. M. to 2 P. M., and in the afternoon the Primary classes are left to the undisturbed care of their regular teachers.

The instructions given by Mrs. Sullivan are not of the nature of an advanced education, but are designed to give a special qualification for teaching in the Primary Schools. They form a basis of qualification for Grammar School instruction. But the school is not yet organized to train a class for Grammar School instruction, and it is therefore designed to qualify for teaching in the Primaries.

The instructions given to the class cover the ground of theory and practice. They take up great numbers of examples and illustrations, and criticisms of work actually done; and they are in addition an attempt to train the class to those habits of mind which are so important in the teacher, and to give them, from the study of text-books and attendance on elementary lectures, a kind of knowledge which is required in the school-room.

It was supposed at the opening of the school that an important auxiliary of the training work would be substitution in the other Primaries of the city. The numbers in attendance were then inconveniently large, and no harm resulted from the plan.

The school has now, we suppose, settled down to about its normal membership; and the Committee find that it is possible there may be too much rather than too little substitution. It is evident that this practice, if carried too far, would disorganize the class and defeat the ends of the school. The success of the plan requires that the young ladies should remain substantially undisturbed in their work throughout the year. They should be expected to begin the year with the school and remain to the end, and they should not be permitted to act as substitutes indiscriminately, or whenever an opportunity offers, but only under regulation, and as their own progress in the Training School and the interest of the school require.

THE BENEFIT TO BE EXPECTED FROM THE TRAINING SCHOOL, AND THE USE WHICH SHOULD BE MADE OF IT.

This school, to be as useful as it is hoped that it will be, should not be left merely to train and graduate its annual class. It should be in a sense the Normal School of the city, the model and the instructor especially of all the Primary teachers.

It will send forth annually a trained class into our schools, and through them affect very much the whole system of public education. But it is designed to do much more than this, and be an important benefit to every instructor in the city. The statute of the Commonwealth requires the teachers to visit other schools with considerable frequency. This school is provided as one above all others to be visited. Arrangements are made for such visitation,

and it is expected that other teachers will see here examples of what they can do, and models of the way to do it. For the sake of preventing this school from running too much to theory, and losing its practical value and character, it has been kept as it was at first, — no more select than the average. The children come mainly from families which are in no respect above an average condition in life, and what is accomplished with them can certainly be accomplished in any school in the city by any teacher who knows how to do it.

Particularly at the present time, when efforts are making to introduce a freer and more various system of instruction into the Primaries, does the value of such a training become conspicuous. In all plans for school improvement we come back at last upon the character and quality of the teachers; and any one who has taken the pains to examine the course of study adopted during the year past, will observe at once how much more is left to the teachers than formerly. We believe that to be the true system which leaves the most to them, which is consistent with order, and holds them to the widest and closest responsibility for results. Every step of approach to such a system is new evidence of the importance in the system of such an institution as our Training School.

For the information of the public we would say that this institution is not designed to be a select school for any who wish to advance their education or to qualify themselves for the general work of teaching. It is a training department provided by the city for its own use. It is understood that those who derive benefit from it are to repay it by instructing in our schools; and it is not considered that the Committee are under obligations to receive pupils into it in any larger number nor at any other times than is likely, in their judgment, to promote the objects for which the school was established.

Young ladies who desire to enter it should do so at the opening of the year. By the end of the first term the class has advanced so far as to make it difficult for a new pupil to enter with advantage; and we therefore repeat that all persons who wish to avail themselves of the training which is here offered should plan to

begin with the class at the opening of the year, and continue with them to the end.

In the way of a cautionary suggestion, we desire also to state that the diploma awarded to graduates is only a certificate of graduation, and does not of itself entitle the holder to appointment as teacher. Those who have passed successfully through this school are to be treated as preferred candidates; but in all cases of actual appointment the sub-committees act in the use of full liberty to select whom they consider the most promising candidate.

It is proper to add to these remarks that the entire additional expense of the Training School does not exceed $1,200 per annum.

THE DRAWING SCHOOL.

At the last session of the Legislature an act was passed requiring every city having more than ten thousand inhabitants to make provision for giving free instruction in industrial or mechanical drawing to persons over fifteen years of age, either in day or evening schools, under the direction of the School Committee. In compliance with this act, the City Government early in November procured a room in Hyde's Block, in the Second Ward, and a school was at once opened by the Committee. Professor Chandler, an instructor at the Institute of Technology and a practical architect, was placed in charge of the school; and in December, Mr. Tilden was engaged as his assistant. Ninety persons appeared at the hall at the opening of the school; and during the two months of its existence one hundred and forty — among them carpenters, machinists, carvers, glass-cutters, stereotypers, and cabinet-makers — have availed themselves of its privileges.

The average number of scholars has been one hundred and twenty, and the average attendance about seventy-five per cent. The school has been divided into two classes, each class meeting twice a week. Models, charts, and designs for copying have been furnished by the teachers. Drawing boards and instruments have been purchased by the Committee at a cost of about three hundred and fifty dollars. No further outlay for this purpose will be required for several years, unless the school is considerably enlarged.

Instruction has been given in architectural, machine, and ornamental, or free-hand drawing. One half the pupils study architectural drawing, one fourth machine drawing, and one fourth ornamental drawing or designing. Although the school was at the outset an experiment, and from its unlooked-for size suffered for a time from lack of an assistant instructor and proper room, lights, and instruments, the progress already made has confirmed the Committee in the belief that the school will prove one of the most useful as well as popular features of our Common School system.

It is an attempt to provide some intelligent preparation for the prosecution of industrial labor, to teach mechanics and artisans what has been termed the "alphabet" of their education, to give to boys preparing to work at the carpenter's bench and the machinist's lathe facilities for study corresponding in some degree to the courses in book-keeping and the modern languages, and in the classics and mathematics, by which their fellows are now trained for the counting-room and the college. The welfare of the State is as dependent on the workingmen as upon professional men. The skilled mechanic fills no less a place than the educated merchant. Nor can taxation for the training of the one class be supported upon any principles that will not apply to both. The limits of this Report will not allow us to touch upon the many advantages to be derived from the system thus inaugurated by our Legislature; but we fully believe with one of the earliest of its advocates that "whatever brings manual skill again into repute, and counteracts the growing disposition to discredit every means of livelihood that does not consist in 'brain-work' merely, is a positive gain to our civilization."

METHODS OF INSTRUCTION.

The Report of the last year dwelt at length on the course of study and the methods of drill in the schools of the city. We would refer again to those sections as worthy to be remembered.

The power that moves a school is not so much the far away law of the State nor of the Committee, but the nearer and more direct force of personal influence. The larger and freer and better

the personality can be made which reigns in the school-room the better. The theory we advocate would be to give the teachers the greatest freedom, and to hold them to the closest responsibility. Teachers are placed in their chair to rule and teach the scholars. That responsibility is theirs alone, and not divided with the sub-committee in charge of the school. The office of the Committee is not that of sustaining the order and discipline of the rooms, but the higher one of inspection, supervision, regulation, and of disciplinary interference only in extreme cases. It is to be presumed that the teachers are competent persons; and the school system should put the class into their care, with as little restriction as possible, and hold them responsible for success.

And so with regard to the method of instruction: the "text-book" and the "course" should neither be imposed nor followed with an iron rigidity. The teacher should have resources of his own. He should continually freshen his exercises with original work of his own introduction. Some of the best teachers have made very little use of text-books at all. Others have not considered it a matter of much importance that they should have "the latest and best." It would be anywhere and everywhere a sign of little invention or capacity should a teacher excuse the delinquencies of his class on the plea that some other text-book was better. It is not the text-book that is to be taught, but the study.

The object of arithmetical drill is not to learn the examples, but to acquire the principles and the discipline. It is a matter of very little significance whether a child can outshine the rest in reading this or that ballad; but it is a matter of great importance what he can do with the column of a newspaper or a book or a letter from a friend.

These principles should be applied to the conduct and preparation of examinations. The teacher who drills his class merely for the ordeal of the approaching examination is drilling them into routine and out of real study. He should conduct all his lessons with reference to life and its work and needs, and aim at a broad mastery of the matter in hand.

There is a tendency in school examinations to run down to a mere show and routine which amount to more as a school amusement

than as an evidence of progress. It may be found that the present system of examination fosters routine work, and could be modified with great advantage. In itself the exercise is good; but when created by a fiction of ambitious masters into the goal of all the year and the end of endeavor, it fosters a narrow, unthinking kind of study, which succeeds better in making the scholars appear well in examination than in fitting them to stand well in the hard work of an advanced standing.

It would be well if the sub-committees, in visiting schools, would act on these principles, and remember that on such occasions they are there quite as much to examine the teachers, to observe their methods, their capacity, their proficiency, and their skill, as for any other purpose.

Another matter which requires attention is the relation to each other of duller and quicker pupils in the same class. Instances can be named in nearly every school of pupils who have found time hanging unemployed on their hands, who have lost interest because they were not employed, become troublesome, and perhaps been suspended from school, merely because they were so much more able and active than the others that the school-course was to them a farce. These are really the best children in the schools, and, above all, the ones to receive care and pains. The system of average lessons breaks down on them, and the question arises, What to do?

Legislation by the Committee will perhaps not reach such a case. Something might be done by arranging frequent examinations for promotion, and thus giving scholars an opportunity to ascend the school-ladder at the rate of speed which is most natural to them. But, above all, teachers should be warned to keep their eyes open to such cases, and make their instruction elastic enough to draw out the most and best there is in every child. It is an easy matter to start difficult questions in very simple lessons, and the teacher should be prepared with them for his brighter scholars. It is well known how deeply Dr. Thomas Arnold of Rugby felt this embarrassment, and how earnestly he warned his assistants to do their duty by the average scholars without impeding the progress of the more gifted.

Complaints are frequently made that pupils of this class memorize their reading lessons and recite them by rote instead of reading them. Such children should have fresh work given them to do continually. They should go over more ground than they now do, and read more new matter. Instead of binding them down to one passage in the vain hope of its being read perfectly, the teacher should remember that it cannot be read perfectly until the child's intelligence has grown. He should aim at attaining what is possible at the moment, and then stimulate his scholars by new and fresh practice. No singing master who understands his work would delay a pupil on one piece of music, however simple, until he could execute it perfectly. Such a course would preclude him from that growth of intelligence and of power of expression which is his only hope of ever being able to execute even the common scale in a perfect manner.

So with learning to read, and with all study. The child must have in its instruction expanse as well as depth. A mile of walking on a piazza is not worth as much as a mile in the fields. The teacher who wishes to be thorough must not drill always, or he will destroy the life and the enthusiasm which is alone equal to the high labors of thorough study. Sometimes he must run and fly and give the class an opportunity to grow fervid in their exercises. These principles apply to the young minds of children as well as to older scholars, and we believe that an ingenious and enterprising teacher will find means of applying them in studies as simple as learning to read and to spell.

HAMLIN R. HARDING,
Chairman ex officio.

ANDREW P. PEABODY,
ALEXANDER McKENZIE,
HENRY P. WALCOTT,
KINSLEY TWINING,
JAMES COX,
EDWARD R. COGSWELL,
CHARLES J. McINTIRE,
GEORGE H. MINER,
SUMNER R. MASON,
JAMES M. THRESHER,
WILLIAM A. MUNROE,
FRANCIS A. FOXCROFT,
PHILIP R. AMMIDON.
} *School Committee.*

TABULAR VIEW

OF

THE PUBLIC SCHOOLS OF CAMBRIDGE,

JANUARY 1, 1871.

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1871.
High School,	Lyman R. Williston . . .	$4,000	280
	William F. Bradbury . . .	2,500	
	John Orne, Jr.	2,000	
	Theodore P. Adams . . .	2,000	
	Mary F. Peirce	1,000	
	Emma A. Scudder	800	
	Elizabeth M. Fessenden . .	800	
	Hannah Gleason	800	
Allston Grammar,	Benjamin W. Roberts . . .	2,000	591
	Lizzie B. Winnett	600	
	Sarah E. Hearsey	600	
	Sarah D. Whiting	600	
	Emma F. King	600	
	Sarah L. Roberts	550	
	Mary E. Gamwell	600	
	Lilian L. Hayward	600	
	Mary Cutler	500	
	Isabel E. Billman	500	
	Lucia E. Whiting	500	
	Susan H. Ricker	500	
	Sarah J. Hinckley	600	
Harvard "	Aaron B. Magoun	2,000	321
	Catharine Richardson . . .	600	
	H. Augusta Dodge	600	
	Ada H. Wellington	600	
	Mary E. Wyeth	600	
	Martha M. Damon	600	
	Lydia S. King	600	
	Susan F. Athearn	500	
Putnam "	Francis Cogswell	2,000	350
	Sarah M. Burnham	600	
	Anna B. Josselyn	600	
	Maria E. Spare	600	
	Lizzie A. Winward	600	
	Eva L. Holbrook	600	
	Minnie E. Metcalf	600	
	Ella R. Grieves	500	

TABULAR VIEW OF THE PUBLIC SCHOOLS (*continued*).

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1871.
Shepard Grammar,	Daniel B. Wheeler	$2,000	333
	Emma M. Taylor	600	
	Ella L. Hinman	600	
	Lu A. Butters	600	
	Sara J. French	600	
	Mary C. Cook	600	
	Olive E. Fairbanks	600	
	H. Estelle Varney	600	
Thorndike "	Ruel H. Fletcher	2,000	419
	Anna W. Averill	600	
	Eunice B. Dyer	600	
	Martha A. Martin	600	
	Rebecca D. Wing	600	
	Ella W. Clark	600	
	Ruth H. Faxon	600	
	Clara Bartley	600	
	Jeanie A. Norris	600	
	Mary E. Mason	600	
Washington "	Daniel Mansfield	2,000	413
	Lucy A. Downing	600	
	Adeline M. Ireson	600	
	Catharine P. Green	600	
	Abby M. Webb	600	
	Eleanor M. Butler	600	
	Mary E. Lord	600	
	Adelaide M. Keith	600	
	Adelaide A. Keeler	600	
Webster "	Alvah C. Smith	2,000	560
	Eliza K. Brackett	600	
	Lucille C. Bancroft	600	
	Eliza D. Fisher	600	
	Jane Dallinger	600	
	Helen J. Maiers	600	
	Louise C. D. Harlow	600	
	Isabel B. Merrill	600	
	Gertrude A. Hyde	600	
	Esther F. Hannum	600	
	Susan E. Merrill	600	
Boardman Primary	Mary F. Emerson	600	339
	Mary F. Ball	600	
	Margaret B. Wellington	600	
	Mary F. Stewart	600	
	Mary Agnes Lewis	600	
	Sarah E. Stewart	600	
	Ada W. Baker	500	
	Fannie A. Cooke	600	
Bridge "	Elizabeth E. Dallinger	600	83
	Emily C. Dallinger	500	
City "	Sarah A. Rand	600	30
Dana "	Abby A. Lewis	600	108
	Maria F. Williams	600	

TABULAR VIEW OF THE PUBLIC SCHOOLS (*continued*).

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1871.
Dunster Primary,	Sarah B. Waitt	$600	155
	Susan E. Wyeth	550	
	Mary L. Bullard	450	
	Mary E. Smallidge	450	
Felton "	Jeanie C. Osgood	600	122
	Martha A. Culver	600	
	Sarah H. Chase	450	
Gannett "	Sarah J. A. Davis	600	179
	Lucy C. Wyeth	600	
	Jeanie L. Richardson	550	
	Annie F. Harding	600	
Harvard "	Helen J. Ward	600	43
Holmes "	Marianne M. Webb	600	166
	Eunice W. Field	600	
	Julia H. Kimball	600	
	Ella F. Webber	600	
Lechmere "	Martha J. Avery	600	57
Mason "	M. Lizzie Evans	600	179
	Julia E. Murdock	600	
	Susan M. Cochrane	500	
Otis "	Abby S. Taylor	600	433
	Lydia A. Whitcher	600	
	Susan M. Pendexter	600	
	Martha H. Butler	600	
	Ellen N. Pike	600	
	Luvia Goodnow	600	
	Annie Knapp	600	
	Emma Barrett	600	
Putnam "	Frances E. Pendexter	600	216
	Hattie M. Prince	600	
	Harriet A. Butler	600	
	Carrie F. Noyes	550	
Quincy "	Charlotte E. Jewell	600	89
	Helen E. Morey	600	
Reed St. "	Lucy T. Sawyer	600	204
	Evelyn A. Sawyer	600	
	Martha C. Dickman	600	
	Elizabeth A. Tower	500	
Sargent "	Anna M. Harrod	600	179
	Frances J. Harrod	600	
	Helen M. Kelley	450	
	Priscilla L. Lothrop	450	
Shepard "	Fanny E. M. Dennis	600	114
	Adelia Dunham	500	
	Charlotte A. Ewell	500	
Thorndike "	Mary E. Willis	600	90
	Helen L. Shepard	500	
Webster "	Mary A. Tarbell	600	169
	Mary E. Sawyer	600	
	Fanny E. Cooke	500	

TABULAR VIEW OF THE PUBLIC SCHOOLS (*continued*).

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1871.
Williams Hall	Anna S. Lamson	$600	92
Primary,	Kate M. Lowell	500	
Training School,	Anna C. Sullivan	1,000	169
	Emma F. Munroe	800	
	M. Etta Arkerson	500	
	Ella C. Whitney	500	

Teacher of Singing,—Nathan Lincoln, $2,000.

SUMMARY.

Number of pupils in High School	280
" " " " Grammar Schools	2987
" " " " Primary Schools	3216
	6483

COST OF INSTRUCTION.

High School	$13,900	for each pupil,	$49.64
Grammar Schools	49,350	" " "	16.52
Primary "	40,000	" " "	12.43
Music	2,000	" " "	.31
	$105,250		$16.23

Number of pupils belonging to Public Schools, Jan. 1, 1871	6483
" " " " " " " " 1, 1870	6187
Increase during the past year	296

Increase of pupils, 1860	272
" " " 1861	172
" " " 1862	262
" " " 1863	226
" " " 1864	200
" " " 1865	58
" " " 1866	243
" " " 1867	286
" " " 1868	330
" " " 1869	20
" " " 1870	296

Number of Schools	29
" " Teachers	145

REPORT

OF THE

SUPERINTENDENT OF SCHOOLS.

To the School Committee of Cambridge:—

GENTLEMEN, — The close of another year renders it my duty, in conformity with your Regulations, to submit my Annual Report. In thus complying with your requirements, my only aim will be to present the results of my observations during the year in such a manner as to aid you, in some measure, in forming a correct estimate of the present condition of the schools.

I submit a few statistics, which, though not of general interest, are yet of some value to any who care to make themselves acquainted with the growth of our school system: —

POPULATION.

Population of Cambridge		40,000
Number of children from five to fifteen years of age in May, 1870	8086	
Number in May, 1869	7571	
Increase for the year	515	

SCHOOLS.

1 High School.
7 Grammar Schools.
21 Primary Schools.
6 Evening Schools.
1 Evening Drawing School.

SCHOOL–HOUSES.

Whole number of school-houses	23
For the High School	1
For the Grammar Schools	7
For the Primary Schools	15

Estimated valuation of school-houses, lots, furniture, libraries, and apparatus, $450,000.

TEACHERS.

Number of teachers in High School	8
Male teachers, 4; female teachers, 4.	
Number of teachers in Grammar Schools	67
Male teachers, 7; female teachers, 60.	
Number of female teachers in Primary Schools	69
Number of teachers in Evening Schools	10
Male teachers, 6; female teachers, 4.	
Number of teachers in Evening Drawing School	2
Whole number of teachers in Day Schools, including teacher of Music	145

PUPILS.

Average whole number of pupils belonging to the Day Schools during the year ending February, 1870	5772
Average daily attendance of pupils in all the Day Schools for the year	5328
Average per cent. of attendance of all the Day Schools	92.3
Average per cent. of attendance in the High School	93.2
Average per cent. of attendance in the Grammar Schools	93.3
Average per cent. of attendance in the Primary Schools	90.6
Number of pupils over fifteen years of age attending during the year	514
Average number of children from five to fifteen years of age not connected with the Public Schools	1800
Age at which children are admitted to the Primary Schools	5 yrs.
Number of pupils admitted to Grammar Schools	699
Number of pupils graduated from Grammar Schools	144
Number of pupils admitted to High School	128
Number of pupils graduated from High School	43

EVENING SCHOOLS.

Whole number of pupils belonging to the Evening Schools	388
Average attendance in Evening Schools	150

PRIVATE SCHOOLS.

Whole number of Private Schools	18
Number of pupils in Private Schools	630

FINANCES.

Assessed value of real and personal estate	$43,097,200.00
Total amount of taxes levied	975,518.19
Cost of instruction in the Public Schools	101,180.88
Care and repairs of school-houses	28,640.77
New school-houses	26,882.74
Incidental expenses for school purposes	1,747.97
Total expenses for schools	158,452.36

The year just closed has been marked by an unprecedented number of changes in our corps of teachers. Death has entered our circle, and has removed one whose place in the school-room cannot easily be filled, and whose loss will long be felt. Miss Sarah McKay, assistant in the Putnam Grammar School, had taught in Cambridge but little more than one year; but in that time she had succeeded in winning the earnest love of her pupils, and the entire confidence and esteem of all her associates.

The whole number of teachers appointed to permanent positions during the year was thirty-three: of these, two were chosen to fill vacancies in the High School, eighteen in the Grammar Schools, and thirteen in the Primary grade.

To this list might be added those who have been employed in the Evening Schools and the Drawing School, and also quite a large number who have taught a portion of the year as substitutes or as temporary teachers.

If now it be added that an unusual number of transfers from one school to another have also been made during the same time, no one will fail to see that so great a number of changes could not

have occurred without, in many instances, retarding the progress of the schools.

A serious question with us is, how to secure and how to retain such teachers as we desire to see in our schools. The Training School is doing an indispensable work in this direction, but it is entirely inadequate to supply all who are needed; while, at the same time, it will always be true that for many positions we shall deem it expedient to appoint only those who have had successful experience, either in this city or elsewhere.

It has been clearly demonstrated within the past few months, that we can neither retain all whose services we desire, nor can we, in all instances, secure from neighboring towns and cities, those whose merits entitle them to consideration. Nearly one half of those who have resigned during the year have done so in order to teach elsewhere, or to engage in other pursuits more remunerative; and among these have been some of our best teachers. In the endeavor to fill existing vacancies, the members of your Board have had abundant proof of the difficulty of securing teachers possessing the requisite qualifications.

It seems important to state in this connection that the system of large rooms still existing in our Grammar Schools, and to some extent in the Primary Schools also, has frequently much influence in depriving us of excellent teachers, who would otherwise accept the positions which are tendered them. Many teachers feel that a room of suitable dimensions, even with a smaller salary, is preferable to one of our large rooms, notwithstanding the fact that a small increase of salary may accompany it.

I can conceive of no question relating to the schools of higher practical importance than that which has to do with the appointment of instructors.

There is no other possible way in which the schools of this city can be so directly and so materially improved as by seeing to it that none but efficient teachers are appointed to the vacancies that may occur.

It is of infinitely more moment that we have good teachers than that our text-books be admirably adapted to the purposes for which they were designed, that our school-houses be commodious and elegant, or that our school legislation be wise and judicious.

SCHOOL-HOUSES.

The subject of school accommodations has not the merit of novelty, but still it is one of much importance, and hence demands careful consideration.

Something has been done the past year towards improving the character of our school buildings.

In Ward One it was felt that a new school-house was needed for the Washington Primary, and accordingly a wooden structure, containing seats for 224 pupils, was erected on Hilliard Street; and immediately on its completion the school was transferred to it, under the name of the Holmes Primary. This gives to the Grammar School an additional room, which was much needed; since it has, for several months, suffered great inconvenience on account of its crowded condition.

The great advantage, however, is that pertaining to the Primary School, which is now, for the first time, in the enjoyment of the privileges afforded by well-arranged, cheerful, and convenient school-rooms.

The Quincy School is most unfavorably located; and, although it is a costly building, it furnishes accommodations for only about one hundred children.

I venture to suggest, as a matter of great importance, that this school-house and the lot upon which it stands be sold, and with the proceeds a building similar to the one on Hilliard Street be erected on some street leading from North Avenue. In this way, without incurring any additional expense, we can secure a building which will accommodate twice the number of pupils now provided for in the Quincy.

Some change seems imperatively demanded. That large section between Porter's Station on the north, and the Common on the south, and extending east to Baldwin Street, — a distance of nearly one mile from the Quincy School-house, — a section where the population is rapidly increasing, — is less favored in its school privileges than any other portion of the city. So great is the distance to the public schools that many parents feel compelled to place their children under private tuition. Already much complaint

comes from this district, and this will continue unless something shall be done to relieve the wants at present existing.

In Ward Two there is, at present, a sufficient number of sittings for the Primary pupils in the several districts. Some of the school-rooms are, to be sure, in a very unsatisfactory condition; but it is not advisable to dwell upon this at present, since many changes will soon be made in the organization of these schools; and when this occurs, their real wants will be much better known.

The progress made during the past few months towards securing a new building for the Harvard Grammar School is most gratifying; and the residents of this long-suffering district can now be congratulated on the prospect of a speedy completion of a school-house which will be an honor to this portion of the city.

It is confidently believed that in the construction of this building all needless expense will be avoided; while, at the same time, it is hoped that for comfort and convenience it will not be surpassed by any similar school-house in the State. The thanks of all interested are certainly due to those gentlemen of the City Council having the matter in charge, for the care exercised in securing an eligible site for this structure, and for their pains-taking efforts in selecting suitable plans for the same.

In Ward Three one year ago the Primary Schools were in a crowded condition; while, at the same time, both Grammar Schools needed increased accommodations. As one means of removing the difficulty, it was wisely decided to remodel the Otis School-house. This building, like most of those constructed on the large-room plan, had a large amount of useless space. There were but five rooms — three large rooms and two recitation-rooms — that could be occupied; and in these there were seats for about 275 pupils; but of this number *one hundred and sixty* were quartered in one large room or hall. The absurdity — I ought rather to say the cruelty — of such an arrangement was never, as I think, half appreciated.

By the change which has been made, eight pleasant and commodious rooms are secured, which will accommodate about 450 pupils; and now this becomes, in many important respects, the best Primary school-house yet completed in Cambridge.

The expense at which this has been secured is of importance as

having a bearing upon the reconstruction of other large-room buildings. The cost, exclusive of the outlay for furniture,— which, for obvious reasons, should not be included, — was but $3,396.52. The gain in the number of seats was not less than one hundred and seventy-five. This gives the cost per seat $19.40. The cost per seat in the Holmes Primary, although the house is of wood, and planned and constructed with great economy, was, exclusive of furniture, about $51.00. The cost per seat in the Willard Primary now building in Ward Four will not be far from $70.00.

Aside, then, from the consideration of securing rooms suited to the work of a school, in place of those in every respect most unsatisfactory, it is plainly evident that in no other possible way could this number of sittings have been secured with so small an expenditure.

A change was also made during the long vacation in one story of the Putnam School-house.

In this case the two large rooms were divided, making four single rooms. The entire expense of the change was but $819.00. Forty-five seats were gained, showing the cost of each to be $18.20. Thus it will be seen that for the seats gained in the two houses remodelled the expense was but *one-third* of that for the same number of sittings in the Holmes Primary, and not more than *one-fourth* the amount required for a corresponding number in the Willard Primary.

I am not willing to leave this without suggesting that more than a question of dollars and cents is involved in the changes which have been made.

The greatest gain, after all, is in the increased efficiency of the schools, which only those familiar with their daily work can fully understand.

What shall be done the coming year in this Ward? The cry is still for more room. For months there has been no Primary School to which children could with propriety be sent, and the sub-committees have had much difficulty in finding places in which to put the numerous applicants. It should also be stated that there is every reason to believe that, at the opening of the schools next September, both Grammar Schools will need larger accommodations.

I cannot see how the wants of this section of the city can be satisfactorily met except by erecting a building suited to the purposes of a Primary School.

In Ward Four the Willard Primary — a fine brick structure now in process of erection — will be ample to meet the wants which have so long existed in this Ward.

It was found necessary early in the year to obtain quarters for a portion of the primary pupils in Ward Five; and the Ward Room was selected as best adapted to the purpose.

It is not worth while to discuss the disadvantages of having a school permanently established in a room which is frequently used for city purposes, which has no yard-room whatever, and where the children are a source of annoyance to the firemen who occupy the remaining portion of the building.

The greatest objection, however, is the danger to which the children might be exposed in case an alarm of fire should occur at recess, or at the close of a school-session. It was undoubtedly the best arrangement that could be made at the time, but it is hoped that other accommodations will soon be furnished. The Shepard Primary and the Reed Street are both full, and already considerable inconvenience has been experienced in transferring pupils from one school to the other for the sake of filling every seat that might in any case become vacant. The Shepard Primary must very soon surrender its room to the Grammar School; and furniture suitable for the Grammar grade has already been placed in it.

It seems very clear that the Primary School should be removed from the building at the close of the summer term.

I feel sure the next few months will demonstrate the correctness of my views of the wants of Ward Three and Ward Five. It is for you to suggest the remedies.

It will be remembered that the importance of remodelling one or more of the Grammar Schools has often been urged, and the reasons presented are familiar to you.

The expense involved in a change of this kind has heretofore prevented any action in this direction except in the Putnam School to which I have alluded. It now seems that the time has come when, on the score of economy, to say nothing of other considera-

tions, one Grammar School should be reconstructed. The Washington School, having an increase of seventy pupils during the year, has been compelled to occupy its entire building.

Should there be anything like a corresponding increase the present year, the school must overrun the limits of the school-house as at present arranged. In fact, it is now clearly evident that, upon the organization of the school in September, no proper arrangement of classes can be made on account of the straitened condition in which the school will then be. By the change proposed, a building having five large unwieldy rooms, several dark and incommodious dressing-rooms, halls that are simply narrow and ill-constructed entries, and stairways so arranged as to cause the most serious apprehensions for the safety of the children in case of an alarm of fire during a school-session, will be converted into a structure which, in all important respects, will be equal to the best models. Twelve fine class-rooms will be secured; while at the same time the stairways, dressing-rooms, and halls will be inferior to those of no building in the city.

A most important consideration in connection with this, as I have intimated before, is that by the change we shall obtain an increase of not less than one hundred and fifty seats; and it can easily be demonstrated that these sittings can be secured at a much less expense by remodelling the present building than by erecting a new structure of brick, or even of wood.

I am inclined to repeat the suggestions made one year ago with reference to the general care of the school-houses, and their cleanliness and good order. I then said that the condition of the schools in these respects was far from satisfactory. I now feel compelled to say that there has been no marked improvement during the year.

I venture to suggest that the fault is in the system. The yards and out-buildings will not be kept in proper condition, the school-houses will not be well heated and well cared for, repairs so constantly needed will not be promptly made, until there shall be some person who, by *constant inspection*, shall be familiar with existing wants, and to whom irresponsible persons, discharging important duties, shall be held accountable. I deem it of great importance also, as I suggested in my last Report, that a careful

and systematic inspection of all the school-houses be made at the close of the summer term, in order that needed repairs may be made during the long vacation ; and that thus the schools may be interrupted as little as possible during the year. The furnaces, especially, should be carefully examined ; since they are frequently found to be entirely unfit for the purposes intended, even when not, as is sometimes the case, positively dangerous.

PRIMARY SCHOOLS.

In passing to the consideration of topics more directly connected with the work of the year, it seems of importance to notice the changes recently made in the course of study in the Primary Schools. The wisdom of supporting, at the public expense, schools in which the children of the people may receive instruction, is no longer in this community a subject for controversy. The only question now is, *what* to teach and *how* to teach. Upon the former part of this question, opinion seems more and more divided with the lapse of time.

In no department of the school-course are principles so settled that we can confidently declare that proposed changes in a plan of study will be for the best interests of the schools. With us a revision of the course of study seemed demanded. The importance of some change will best be understood by noticing a few of the defects apparent in the former Plan of Study. There were five classes, — four besides the alphabet class ; and it was found that the work was so distributed as to render it probable that most pupils would spend four years in the school after leaving the alphabet class. Practically, then, the course covered a period of about five years, and scholars advancing by regular steps consumed nearly that time in preparation for the Grammar Schools. This seems too long a time for the amount of work required, and doubtless might have been shortened had the studies been differently distributed through the course. As regards the subjects to be taught, the programme itself best shows its deficiencies.

The powers of the letters were not required, notwithstanding the fact that experience has shown that in no other way can the natural defects in articulation be so easily overcome as by teaching

with care and exactness the elementary sounds which alone constitute the spoken language.

Nothing of number was taught until the child reached the second class; and then the instruction was chiefly, if not wholly, of an abstract character. The pupil was taught to read figures, but did not practise making them till he entered the Grammar School.

Neither drawing, printing, nor writing was required; in fact, the Plan of Study did not recognize the importance of slate exercises of any kind, and until within a short time slates, in most of these schools, were unknown.

Oral instruction was also practically ignored, except where the enterprise of the teacher rose superior to the bounds set by the programme. As a proof that the faults did not consist entirely of omissions, it should be mentioned that much time was consumed in the hardest kind of drill upon Roman numerals representing numbers so large as to be utterly incomprehensible; punctuation-marks whose names have, in some strange manner, been preserved to vex the present generation; and abbreviations in endless variety.

Thus, as has been said, it seemed expedient to introduce some changes.

Early in the year, in a meeting of teachers called for the purpose, a committee from their number was appointed to aid in the preparation of a new course of study. Several meetings of this committee were held, in which the proposed changes were fully discussed. The result of this was a Plan of Study, which, with some modifications by the sub-committee of your Board having the matter in charge, was finally adopted.

Although you are familiar with its provisions, I have thought it advisable, for certain reasons, to present it here. It is as follows: —

PLAN OF STUDY IN THE PRIMARY SCHOOLS.

FIRST YEAR.

FIRST TERM.

Reading and Spelling. The elementary sounds and names of the letters to be learned from the blackboard and from charts. Primer to the 30th page. Spelling from the reading-lessons by sounds and by letters.

Numbers. Develop these as far as ten by the use of objects. Count to one

hundred. Simple exercises in adding, by using the numeral frame, marbles, beans, &c.

Drawing and Printing. Drawing Cards 1, 2. Print the reading and spelling lessons, and the Arabic numerals as far as learned.

Oral Instruction. Lessons on the senses; on the form, size, and color of common things.

SECOND TERM.

Reading and Spelling. Primer completed. Spelling as in first term.

Numbers. Counting by twos to one hundred, forward and backward. Reading and writing Arabic numerals to 50.

Simple exercises in adding and subtracting, using objects or the numeral frame. Roman numerals to XX.

Drawing and Printing. Cards 3, 4, 10. Printing reading and spelling lessons on the slate.

Oral Instruction. The human body, its chief parts; articles of clothing and food; days of the week; months of the year; the seasons.

SECOND YEAR.

FIRST TERM.

Reading and Spelling. Hillard's Second Reader to the 90th page. Speller to the 25th page. Spelling from the reading-lessons.

Numbers. Half of the addition and subtraction tables, with a variety of miscellaneous exercises illustrated by objects. Roman numerals to L. Writing Arabic numerals to 100.

Drawing and Printing. Cards 5, 6, 7. Printing words from the reading and spelling lessons. Construct tables of numbers.

Oral Instruction. Domestic animals; the primary colors; trees and flowers.

SECOND TERM.

Reading and Spelling. Finish the second reader. Third reader to the 71st page. Spelling the columns of words, and words selected from the reading-lessons. Speller to the 37th page.

Numbers. Addition and subtraction tables completed. Writing of Arabic numerals to 500. Simple exercises in adding numbers upon the slate. Roman numerals to C. Eaton's Primary Arithmetic to the 38th page.

Drawing and Writing. Cards 8, 9, 11. Small script letters. Writing words from the reading and spelling lessons. Constructing tables as before.

Oral Instruction. Trees and flowers; wild animals, metals, building materials, and common household articles.

THIRD YEAR.

FIRST TERM.

Reading and Spelling. Hillard's Third Reader to the 132d page. Spelling from the reading-lessons as before. Speller to the 49th page.

Numbers. Review addition and subtraction tables. Half of the multiplication and division tables. Reading and writing Arabic numerals to 1000. Simple slate

exercises in addition and subtraction. Roman numerals reviewed. Eaton's Primary Arithmetic to the 64th page.

Drawing and Writing. Card 12. Plates 1 and 2. Writing words from the reading and spelling lessons.

Oral Instruction. Trades and occupations; common phenomena of the air, earth, and heavens.

SECOND TERM.

Reading and Spelling. Hillard's Third Reader completed. Speller to the 61st page. Spelling from the reading-lessons.

Numbers. Tables completed and reviewed. Reading and writing numbers to 10,000. Slate and blackboard exercises in adding and subtracting numbers and in multiplying by one figure. Eaton's Arithmetic to the 82d page. Roman numerals reviewed.

Drawing and Writing. Plates 3 and 4. Writing continued.

Oral Instruction. Continue lessons on physical phenomena, measures, and distances. Review some of the most important topics.

General Directions. The oral teachings must receive daily attention. Singing and physical exercises must be attended to at least once in each session throughout the course. Verses and maxims are to be taught occasionally through the course. All incorrect or inelegant expressions should be noticed and corrected.

The names of the punctuation-marks are to be taught as they occur in reading.

A few abbreviations in common use should be taught in the higher classes.

In all the lessons the teacher must not rely on the text-book, but chiefly on oral instruction, using the blackboard, chart, and whatever else her ingenuity may suggest.

In reading, special attention should be given to distinctness of articulation. Correct emphasis and inflection will be best secured by imitation, and by calling attention to the meaning of what is read.

It is not claimed that this course of study is perfect: it may be found that in essential respects it is exceedingly faulty; but it is believed that in its general scope it is much better adapted to the wants of this grade of our schools than that which it displaced; while defects that experience shall make manifest can easily be remedied.

The time for accomplishing the work, according to this programme, is three years; but since we now promote to the Grammar Schools but once during each year, and yet admit children to the Primary Schools whenever they apply, the result will be that a large number of the pupils will remain in the schools more than three years; while, at the same time, it will doubtless be found that, by promoting individual pupils whenever their attainments will warrant it, many will complete the course in less than the prescribed time.

Each year is divided into two terms, which will be a convenience under present arrangements, and will necessitate no change, if, as has been proposed, the plan of semi-annual promotions to the Grammar Schools should hereafter be adopted. It may be found that more work is required in certain branches than can be done, and well done, in the time allowed for it. Should experience develop such faults, the remedy will be easily applied.

It will be impossible, for the present, to have an exact classification under this programme, on account of the fact that, in much of the work, quite radical changes are made, affecting, more or less, the relative position of all the classes. This is best illustrated by a reference to the subject of *number*, which is now to be taught in some form, almost from the time the child enters the school; but, under the other programme, it was deferred to a period much later; so it must follow that there are at present certain classes which are qualified, in reading and some other branches, for a given grade, but cannot now be classified in that grade because of deficiencies in the subject of number, or in other branches heretofore postponed to a much later period of the course.

It will require one or two years to determine precisely whether the work has been judiciously distributed, and to settle other questions that may arise.

I desire to add that the teachers of this grade have shown a most commendable zeal in carrying out the provisions of the new course of study, and are laboring earnestly to achieve success under it. I believe there has been real progress in these schools during the year. There is more teaching than ever before, which is equivalent to saying that there is *better* teaching than ever before.

Teachers begin to appreciate the fact that oral teaching — oral lessons and illustrations — must have a prominent place in connection with every recitation, whether it be reading, the "tables," or other branches. I am sure I am correct in claiming that there is less hearing of lessons, and more real instruction, than ever before. I think we want still less of the former, and more of the latter. Much is already gained, much remains to be accomplished. Very seldom now is a lesson given out by the teacher without some explanation on her part of those difficulties

which would be sure to prove a source of discouragement to the child, if he should meet them without previous preparation.

I am not sure, however, that all teachers yet see the great importance of teaching scholars to study, and of studying with them; of teaching the difficult thing in the lesson, before the child has had an opportunity to store up errors, which are so hard to correct.

And here I desire to say, lest I be misunderstood, that I am by no means suggesting that the teacher should do the pupil's work; I only say that she should, in all cases, anticipate that which the pupil *cannot* do, in order that he may intelligently perform that which lies within his ability. The work of the instructor is less limited in some branches of study than in others; in reading, for instance, it seems almost literally true that all the child gains he draws directly from the teacher. We must *show* pupils how to read rather than tell them how it should be.

Good reading implies, among other things, distinct articulation; but this the instructor must *teach*, else it is not acquired. It also implies correct emphasis and inflection, and these are taken from the very lips of the teacher; for how can they be taught except by imitation?

To be sure, correct emphasis and inflection do imply an understanding of what is read; but it is peculiarly the duty of the teacher to lead the child to a comprehension of the meaning of word, phrase, paragraph, or lesson.

I am pleased to believe that most of the primary teachers accept the truth that the greater the amount of live, wide-awake, intelligent teaching, the greater the excellence of the school. As regards the matter of instruction in our schools, there is no more hopeful sign than the evident desire of most of the teachers to make themselves acquainted with the best methods of imparting knowledge in the different branches taught. This is as it should be. The teacher who is not willing to be a learner is hardly fit to be an instructor.

GRAMMAR SCHOOLS.

In calling your attention to this grade of our schools, I deem it safe to say that the year just closed has witnessed a real advance in many important respects.

I trust this remark will not be regarded as one of those general statements which so easily find their way into a Report of this kind. Of course such a statement does not apply to every department of every school; but it does belong to *some* department of each school, and certainly is true of the schools as a whole.

So much of what has been said of the gain in the amount and quality of the teaching in the Primary Schools is also applicable to this grade that I shall not dwell upon the details as I should otherwise feel called upon to do.

In general, then, it can be said that while the instruction has, in all branches, been fully up to the ordinary standard of excellence, in some, especially in those which from the nature of the case demand most freedom on the part of the teacher, and least adherence to text-book routine, there has been very marked progress.

As in the Primary Schools, so here, difficulties are anticipated, while explanation and instruction bear their due share in investing the otherwise dry and incomprehensible subject with interest and life. If the evidences of skilful, thorough, and exact work have not been so general as could be desired, still they have been sufficiently so to warrant us in anticipating much for the future.

Some changes worthy of mention have been made in the course of study. Hillard's Intermediate Reader has displaced the Sixth, which was thought to be ill-adapted to the capacity of the children in this grade of the schools. Walton's Written Arithmetic, which was deemed too difficult, has given place to Walton's Practical, which certainly is not open to the same objection.

Drawing has been a branch of study in the schools more than one year, this city having thus anticipated the recent State legislation making it a requirement throughout the Commonwealth.

Another important addition to the course of study was the introduction of Hooker's "Child's Book of Nature," which, it is hoped, will supply a want which has long been felt in the direction of general instruction.

Still another subject was introduced, which was indicated by adding to the Rules and Regulations the following: "The composing and writing of sentences shall be begun with the Sixth

Class, and continued, as a frequent exercise, through the course."

This is a step in the right direction. The design is to enable the child, through the instruction and practice which will now be given, to express neatly and correctly any simple idea he may have in his mind. If any one doubts the necessity for this kind of instruction, let him call upon the pupils of any school, where there has been no previous preparation, to put upon paper a few sentences descriptive of something with which they are entirely familiar, or test them in any other similar manner, and it is believed the result will show that the weakness in this direction is more marked than in almost any other department of the school-work.

Before leaving this, it should be suggested that Drawing, the "Child's Book of Nature," and the composing of sentences are *additions* to the work required in the Grammar Schools. They displace no other studies, and the labor demanded for other branches is but little less on account of their introduction. Now as it is unfortunately true that neither teacher nor pupil can well do two things at the same time, it is quite possible that experience will show that some relief in certain branches will be demanded. I think the desired object can be attained by eliminating from the course some of the requirements which are, to say the least, of doubtful utility. Having, however, no plan at present matured, I can only suggest that in my judgment Defining, as generally taught and as contemplated by the regulations requiring it, may well be spared from the course. The importance of teaching the meaning of word, phrase, or sentence, so that the child may have an intelligent idea of what he is reading or studying, cannot be too strenuously insisted upon, and is not fully appreciated by most teachers. So, too, the pupil should be made familiar with the use of the Dictionary, in order that he may derive real assistance from frequently consulting it. Still I say that the exercise called Defining is generally so mechanical in its character as to be worse than useless.

I deem it simply a matter of duty once more to enter my earnest protest against the system of large rooms still existing in many

of our schools. Never before were the evils so apparent as now. In every study, but more especially in such branches as have recently been introduced, we are hampered more than can be appreciated except by those familiar with the actual work of the school-room. Many of the failures in discipline during the year are directly traceable to the large number of pupils under the charge of the teacher. But since I am well aware that the judgment of every member of your Board entirely accords with my own upon this subject, it certainly is useless for me to dwell upon it.

HIGH SCHOOL.

The changes which have occurred in the High School during the year, as well as other matters of interest connected with it, are given so fully in the Annual Report that little, if any thing, need be added.

The school was never in a more prosperous condition than at the present time. Having an excellent corps of instructors, and possessing the entire confidence of the community, the future is full of promise.

It may now confidently be claimed that in thorough and successful work this school is second to no similar institution in the State, or indeed in New England. In the examinations for admission to Harvard University, the graduates of the High School have, by their success, shown themselves equal in acquirements to those from the most celebrated schools in the country; and have thus, on several occasions, won for the school the very highest honors.

Of the last class sixteen were admitted to Harvard, seven of whom entered without conditions. Of those admitted, two were from the Second Class, — a fact which speaks well for their ability and industry, as it also does for the excellence of their instruction.

I deem it proper to say, also, that this school is more than a classical school, since, with the excellent arrangement of its different courses of study, it offers a good, thorough, practical education to every boy or girl who is qualified to perform the work required. It is not a school for special training for any par-

ticular vocation in life, and never can be; and hence it will not be a rival of those professional schools which have, and must have, a field peculiarly their own. Still I hold that the school offers to its pupils instruction which is, in the truest sense, practical, and that it most admirably meets the wants of this community.

TRAINING SCHOOL.

Less than one year has elapsed since the organization of the Training School; so that, had it been, in any true sense, an experiment, it would now be too soon to speak of results with any degree of positiveness. Still I desire to express, most unequivocally, the opinion that a full acquaintance with the actual work of the school thus far, and a comprehension of the fundamental ideas governing it, would remove the doubts that any one may have entertained, at the outset, regarding the expediency of establishing such a school in this city.

Certainly the success of the school up to the present time has been more marked than we had any right to expect. The teachers have proved themselves most admirably qualified for their work, and have given efficiency to every department of the school. Fears have sometimes been expressed lest the children in this school should suffer on account of the multiplicity of instructors. Experience, which is always so much better than mere theory, has already proved such fears to be groundless. The Primary classes are, in every respect, in most excellent condition, and are doing thorough and successful work. The testimony of many of the best teachers of other Primary Schools confirms my own opinion that at least some of the classes of the Primary department of the Training School are already furnishing examples of such excellence in Primary school instruction as to make this school, as was intended, a model Primary School.

The Training School is doing just the work that was expected from it. Of the young ladies who have thus far been members of the school, some have been convinced, as they could have been in no other way, that they had not the requisite qualities for the teacher's vocation, and hence have ceased to be applicants for positions in our schools; while others have shown an aptness to teach,

and have been preparing themselves for the special work for which they have proved themselves fitted.

I find that thirteen who have been members of the Training School now have permanent positions in the city; and that three, also residents of Cambridge, who were members of the last class in the Boston Training School, have received appointments, — making, in all, sixteen recently elected who had received the benefits of special training. Some of these young ladies are occupying most difficult positions; but, so far as I am aware, the success of all is highly satisfactory.

I believe most sincerely that the Training School will commend itself to the judgment and sympathies of all who make themselves acquainted with the work it is doing, and the place it occupies in our school system.

EVENING SCHOOLS.

I find nothing in the history of the Evening Schools for the past year to demand extended notice. The object for which these schools were established, and the importance of the work they are doing, are both well known to you.

It is now pretty generally accepted throughout the Commonwealth, as well as in other portions of the country, that they meet a want that can be met in no other way.

I have always claimed that the money granted for this object was most judiciously expended. The cost of the Evening Schools for the year was but $1,354.42; while nearly four hundred persons, many of them adults, were brought under the influence of their instruction.

The small expense involved in carrying on these schools is of little consequence, when compared with the advantages resulting to the community from the diffusion of intelligence among the ignorant, who are here, as elsewhere, a source of such great weakness, socially and politically. Doubtless the statutes of the Commonwealth will soon recognize Evening Schools as a part of the school system of the State; but I cannot forbear expressing the opinion that legislation will not then be complete until the law lays its hand more firmly upon the children of the citizens, and declares that the

welfare and safety of the State demand that they shall be educated. We must have in this country a system of compulsory education, — one that shall be such in reality as well as in name. Ignoring this as the correct principle, we have seen, within the last thirty years, many wiser nations leaving us far behind. By practically allowing each parent to educate his child or not, as he chooses, we are seeing ignorance increase in all parts of the country with a rapidity that may well alarm us. Notice a few facts furnished in the recent Report of the Commissioner of Education. In 1840 there were in the United States 549,850 white persons over twenty years of age unable to read and write. In 1850 this number had increased to 962,898; and in 1860 it had become 1,126,575. Adding to this last number 1,745,536 adult colored persons also illiterate, and we have the alarming aggregate of 2,872,111, or nearly three millions wholly unable to read and write. From facts given in this Report, it seems evident that the returns for 1870 will show that this evil is still increasing with startling rapidity. What are the facts relating to this State, — a State which boasts so much of its system of common schools? In 1840 the number of white persons unable to read and write was 4,448. In 1850 it had become 27,539; and in 1860 it had reached the large number of 46,262. Doubtless the number is now very much larger, and is increasing so rapidly in proportion to the increase of population as to show a much larger per cent. of illiterate persons than at any previous time.

I mention these facts because they seem to me important, and because I believe we are all called upon to use whatever influence we have in securing legislation sufficiently stringent to teach parents that the State has rights which they are bound to respect.

VOCAL MUSIC.

Some important changes have recently been made in the department of music in the Primary Schools. Until within a few months, the singing-master was expected to visit the different classes once each week, and personally to give the entire instruction required by the regulations. With the rapid increase in the number of school-rooms, it was found impossible for such a system to continue. In October last, Mr. Lincoln, instructor in this department, addressed

a letter to the Committee on Music, setting forth the difficulties under which he was laboring, and suggesting, as a remedy, a plan which was afterwards adopted by your Board. This plan is best described in the letter to which I have alluded, and from which I venture to quote a few paragraphs.

"The musical instruction is to be given by the regular teachers, each in her own room; and this to be under the superintendence of the Singing Master. This is the system which has been followed for several years in the Boston schools; is going into operation this very month in Philadelphia; has been adopted in the Salem schools for the last year; and is the system which will prevail, I think, wherever music is taught in Primary Schools. I have already taken steps in that direction. With the consent of the Music Committee of 1868, I requested the teachers in the Primary Schools to allow the children to study, during the week, certain exercises which I left on the board. It was entirely voluntary on their part, and I was delighted to see what progress was made. To be sure, some teachers did little or nothing; but very many of them never failed to show me their classes, from week to week, perfect in the task assigned. I found — what I had been prepared for by observation among the Boston schools — that those of the teachers whose classes showed most progress in my department were not, by any means, proficient in music; some did not even sing at all. If you ask me, then, how they managed, I answer, by their wits, — by their native tact or acquired skill as teachers. I venture to say that there are from thirty to thirty-five of our teachers who are able to-day to give the musical instruction to their own classes in a very respectable manner. Indeed there will be found, in every building, from one to five who can do this."

The plan, then, briefly stated, is for the regular teacher, under the direction of the singing-master, to give instruction in music as in other branches. It is now too soon to speak of results; and I can only say that, so far as I am aware, the teachers are earnestly endeavoring to make the plan a success.

As there are doubtless some who still believe that none but those who are skilled in music can teach successfully, I desire to quote from the Boston School Report a paragraph relating to the instruction in music in the lower grades of the Grammar department: —

"According to the report of Mr. Holt, only seven out of the two hundred and fifty-one teachers who have come under his observation have proved themselves unable to do their work satisfactorily. 'Of these seven,' says Mr. Holt, 'three exchange work with other teachers at the time of the music-lesson; one employs a teacher from outside to aid her in this part of her work, who is present at the time of my visit to receive my instructions; while in three rooms the work is imperfectly done. I find that teachers who are regarded as superior in other branches obtain the best results in music. And many of my best teachers are among those who had no idea that they could do any thing in music when we commenced.'"

Such statements ought to give us courage as we enter upon a new system of instruction in this important branch of study. Believing as I do that the measure of success in this, as in other departments of the school-work, is largely dependent upon the tact, the perseverance, and the fidelity of the teacher, I certainly cannot doubt that the results hereafter will be highly satisfactory.

DRAWING.

The progress in Drawing during the year has been as satisfactory as could reasonably be expected. The full results of the system will not become evident until the pupils of the lowest grades shall have advanced by successive steps through the entire course, and shall thus have shown the degree of proficiency which can be attained by accomplishing the entire work prescribed by the regulations.

I submit, as a matter worthy of consideration, whether it is not now expedient to appoint a teacher whose duty shall be to take charge of the Drawing in the various schools of the city. If the right person can be secured to superintend the work in this department, no one can doubt that the results will be much more satisfactory than can be possible under the present system. I do not suggest that the regular teachers be relieved from the instruction of their classes; but I believe that, in order to give unity and efficiency to the teaching in this subject, a special instructor is not less needed than in the department of music.

We have complied with the requirements of the law passed

by the Legislature of 1870, making it the duty of every city and town having more than ten thousand inhabitants to give free instruction in industrial or mechanical drawing.

An evening school, organized in the month of November, to meet this requirement, has been, from the first, highly successful.

All the important facts relating to this school are before you in the Annual Report, and need not be repeated here.

Without attempting to discuss the wisdom of engrafting upon our school system this new feature prescribed by the law to which I have alluded, I can only say that it seems to me to be a step in the right direction. We can, even in Massachusetts, learn two things from the study of the common school systems of the more advanced nations of Europe: One is the necessity of a system of compulsory education, and the imminent danger to the State from any system which comes short of this; the other is the importance of technical or industrial schools.

These two features united have done so much to prepare Prussia for those marvellous achievements which have recently astonished the civilized world, that one of the greatest of English statesmen has declared that "the victory of Germany over France is the victory of the common school system of Prussia over the ignorance of the French Empire."

"There are in Prussia 361 schools devoted to architecture, mining, agriculture, forestry, navigation, commerce, and other technical studies, general and special. Besides schools for weaving and the textile manufactures, there are 265 industrial schools whose studies and hours are directly arranged for the use of mechanics. The provincial and municipal improvement schools, and those for foreman, workman, and apprentice, all are fitted with models, tools, and laboratories. There are also many drawing schools, in which the classes are arranged to suit various trades needing such instruction. In the weaving schools the pupils receive practical instruction, and also study chemistry as applied to the textile arts," &c.

But Prussia, far from being alone in the matter of industrial education, is even surpassed by some of the neighboring nations. Würtemberg, said to possess the best educated population in

Europe, having only 1,700,000 inhabitants, has 130 industrial schools of various kinds, in which there are more than 20,000 pupils.

England, too, is driven to the necessity of establishing a system of education somewhat similar to that of which I have spoken, in order to maintain her supremacy as a manufacturing and commercial nation. From 1860 to 1868 the number of industrial schools in Great Britain had increased from 9 to 300; while the number of pupils had advanced from 500 in the former year to 15,010 in the latter. I have thus presented these few facts, — gathered mainly from the Report of the Commissioner of Education, — not for the purpose of discussing the question of industrial education among us, but because they seemed to me to be of interest, and worthy of consideration.

TEXT-BOOKS FOR INDIGENT CHILDREN.

I intended to allude to the unsatisfactory manner in which text-books are now furnished to so-called indigent children; but, for obvious reasons, I cannot now dwell upon it.

It seems to me very clear that we need a reform in this matter. A fair interpretation of the rule governing such cases seems to be that if the parent cannot or *does* not furnish the required books, and *at the time when the child needs them*, the sub-committees are bound to supply them at the expense of the city; and the assessors will add the price of such books to the next annual tax of the parent, or not, as they shall see fit.

The difficulty now is, that in prolonging the struggle between the sub-committees and teachers on the one side, and delinquent parents on the other, for the sake of reducing the books furnished by the city to the lowest possible number, much valuable time is lost. Frequently, weeks are consumed in the attempt to extort from parents that which should have been granted at the outset, if at all.

I trust that some plan may soon be adopted by which every pupil shall be promptly supplied with the required books, and that this may be done in such a manner that no tax-payer, as now, shall

be compelled to pay for books furnished to the children of his more opulent neighbors.

I have thus given some of the conclusions which I have reached after a careful observation of the schools during the year. I well know how difficult it is thus to gather up the results of our labors, and I am fully aware how imperfectly the task has now been performed. I can, at least, feel sure that any errors of judgment into which I may have fallen, in estimating the progress of the schools, will be corrected by your own intimate acquaintance with the different subjects to which I have alluded.

Respectfully submitted.

E. B. HALE,
Superintendent of Public Schools.

GOVERNMENT

OF

THE CITY OF CAMBRIDGE.

1871.

MAYOR.

HON. HAMLIN R. HARDING.

ALDERMEN.

D. GILBERT DEXTER,
LEWIS B. GUYER,
JAMES H. HALL,
CHARLES L. HARDING,
JOHN HOLMAN,
JOSEPH A. HOLMES,
EDWARD KENDALL,
HORATIO G. PARKER,
ROBERT L. SAWIN,
WILLIAM L. WHITNEY.

ALDERMEN, BY WARDS.

Ward I. Aldermen PARKER and WHITNEY.
Ward II. Aldermen HALL and HARDING.
Ward III. Aldermen GUYER and SAWIN.
Ward IV. Aldermen HOLMES and KENDALL.
Ward V. Aldermen DEXTER and HOLMAN.

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JOSEPH H. CONVERSE, *President.*

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SAMUEL SNOW,
FRANCIS H. WHITMAN,
JOHN WILSON.

Ward II.

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JOSEPH H. CONVERSE, CHARLES R. PATCH,
JAMES A. WOOLSON.

Ward III.

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JOSEPH COGAN, JOHN MCSORLEY,
EZRA PARMENTER.

Ward IV.

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DARIUS COBB, JAMES RICHARDSON.

Ward V.

FRANCIS M. MASON, ALONZO R. SMITH.

CLERK.

J. WARREN COTTON.

PAGE.

HARRY H. KNIGHTS.

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JUSTIN A. JACOBS.

CITY MESSENGER.

ROLAND LITCHFIELD, JR.

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	Joseph Cogan.

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Edward Kendall.	Francis H. Whitman,
	Levi Hawkes.

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Charles L. Harding.	John McSorley,
	James E. Hall.

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Lewis B. Guyer.	Charles R. Patch,
	Levi Hawkes.

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James H. Hall.	Joshua G. Gooch,
	Alonzo R. Smith.

ON PRINTING.

ALDERMAN.
D. Gilbert Dexter.

COMMON COUNCIL.
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Darius Cobb.

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ALDERMEN.
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John Holman.

COMMON COUNCIL.
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Augustus P. Clarke,
James E. Hall.

ON CITY ENGINEERING.

ALDERMEN.
D. Gilbert Dexter,
James H. Hall.

COMMON COUNCIL.
Knowlton S. Chaffee,
Francis H. Whitman,
Samuel Snow.

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ALDERMAN.
D. Gilbert Dexter.

COMMON COUNCIL.
Ezra Parmenter,
Charles R. Patch.

Joint Special Committees.

ON SOLDIERS AND THEIR FAMILIES.

ALDERMEN.
Edward Kendall,
Robert L. Sawin.

COMMON COUNCIL.
Charles R. Patch,
John Wilson,
Ezra Parmenter,
Alonzo R. Smith,
Augustus P. Clarke.

ON LEGISLATIVE HEARINGS.

The Mayor.

ALDERMEN.
Horatio G. Parker,
D. Gilbert Dexter.

COMMON COUNCIL.
The President,
Knowlton S. Chaffee,
Joshua G. Gooch,
Alvaro Blodgett,
James Richardson.

Standing Committees of the Board of Mayor and Aldermen.

ON POLICE.

The Mayor, Lewis B. Guyer,
Horatio G. Parker, Edward Kendall.

ON THE FIRE DEPARTMENT.

Horatio G. Parker, John Holman,
Robert L. Sawin.

ON ROADS AND BRIDGES.

James H. Hall, Charles L. Harding,
Lewis B. Guyer.

ON SEWERS AND DRAINS.

William L. Whitney, Edward Kendall,
Robert L. Sawin.

ON LICENSES.

Robert L. Sawin, William L. Whitney,
John Holman.

ON HEALTH.

Horatio G. Parker, Robert L. Sawin,
Joseph A. Holmes.

Standing Committees of the Common Council.

ON ELECTIONS AND RETURNS.

Joseph Cogan, James A. Woolson,
Alonzo R. Smith.

ON BILLS IN THE SECOND READING.

James E. Hall, Charles R. Patch,
Darius Cobb.

ON ENROLLED ORDINANCES.

James A. Woolson, William L. Lockhart,
James E. Hall.

Board of Health.

The Mayor and Aldermen.

Surveyors of Highways.

The same persons who compose the Board of Mayor and Aldermen.

Auditor of Accounts.

Justin A. Jacobs.

Treasurer.

Joseph Whitney.

Assessors.

Levi L. Cushing, Jr.,
Artemas Z. Brown,
Andrew J. Green.

Assistant Assessors.

William Caldwell, Ozias Clark,
Rufus Lamson, John M. St. Clair,
James H. Cutter.

School Committee.

Hamlin R. Harding, Mayor, *ex officio*, *Chairman*.

Ward I.

Alexander McKenzie, Andrew P. Peabody,
Henry P. Walcott.

Ward II.

James Cox, Kinsley Twining,
Edward R. Cogswell.

Ward III.

Anson P. Hooker, Charles J. McIntire,
George H. Miner.

Ward IV.

James M. Thresher, Sumner R. Mason,
William A. Munroe.

Ward V.

Francis A. Foxcroft, Alex. E. R. Agassiz,
Philip R. Ammidon.

Secretary.

W. W. Wellington.

Superintendent of Schools.

Edwin B. Hale.

Overseers of the Poor.

The Mayor, *ex officio*, *Chairman*.

Robert Stewart, Benjamin F. Wyeth,
Samuel C. Knights, Charles R. Patch,
Timothy Dwyer, Orlando Stewart.

Clerk.

Benjamin F. Wyeth.

Warden of the Almshouse.

Joseph W. Averill.

Physician of the Almshouse.

James R. Morse, M.D.

Cambridge Cemetery.

Commissioners.

The Mayor, *ex officio*.

George S. Saunders,
Daniel U. Chamberlin,
John C. Farnham,
John M. Tyler,
Charles M. Hovey,
Z. L. Raymond.

Superintendent.

James K. Farwell.

Trustees of Dana Library.

The Mayor, *ex officio*, *Chairman*.

Alderman.

Joseph A. Holmes.

Common Council.

James Richardson.

Citizens at Large.

Anson P. Hooker,
William W. Wellington,
Charles Deane.

Librarian.

Miss Caroline F. Orne.

Cambridge Water Board.

The Mayor, and President of the Common Council, *ex officio*.

Z. L. Raymond,
John Sargent (President),
Samuel Slocomb,
Robert Douglass,
Chester W. Kingsley.

Clerk.

Justin A. Jacobs.

Superintendent of Water Works.

Samuel W. Dudley.

Water Registrar.

Abiel F. Fifield.

Trustees of the Sanders Temperance Fund.

The Mayor, and President of the Common Council, *ex officio*.

Alderman.
James H. Hall.

Common Council.
Augustus P. Clarke,
Ezra Parmenter.

Trustees of the Dowse Institute.

The Mayor, and President of the Common Council, *ex officio*.

Charles Deane, John C. Dodge,
William W. Wellington.

Representatives in General Court.

Charles F. Walcott, John McDuffie,
Robert O. Fuller, Curtis C. Nichols,
Ezra Parmenter.

Police Court.

Standing Justice.

John S. Ladd.

Special Justices.

Henry W. Muzzey,
John W. Hammond.

Clerk.

Thomas McIntire, Jr.

City Engineer.

JOSIAH G. CHASE.

Superintendent of Streets.

GEORGE L. CADE.

Superintendent of Lamps.

ROLAND LITCHFIELD.

Board of Engineers.

Chief Engineer.

PATRICK H. RAYMOND.

Assistant Engineers.

First Assistant	Thomas J. Casey.
Second Assistant	Joseph H. Marvin.
Third Assistant	Albert Norris.
Fourth Assistant	Edward F. Belcher.

Clerk of the Board.

Joseph H. Marvin.

Police Department.

Chief of Police.

ISAAC BRADFORD.

Principal Constables.

DISTRICT I.
Isaac Bradford.

DISTRICT II.
William Twist.

DISTRICT III.
John L. Boynton.

Captain of Night Police.

Frederic W. Hagar.

Policemen.

District I.

Timothy Ames,
Thomas D. Cook,
James B. Morse,
Micah W. Cook,
Andrew Sproul,
Andrew G. Smith,
George A. Marston,
Benjamin Kennard,
Moses M. Child,
John S. Milliken,
Leonard Shackford,
Albert D. Cleveland,
Melancthon W. Clark,
Thomas T. Ferguson,
John Little,
Charles W. Ingalls,
William Storer,
Frederic B. Pullen,
L. J. Cloyes.

District II.

Benjamin F. Bridden,
Abel A. Hildreth,
George H. Copeland,
Daniel Sherman,
James H. Parks,
George Wood,
George S. Dudley,
Warner W. Simonds,
Thomas H. Lucy,
Samuel M. Frye,
John Coleman,
Charles J. Marvin,
Simon D. Hiscock,
Rufus S. Downe,
Benjamin F. Livingston,
Mark J. Folsom.

District III.

Amori Benson, Jr.,
William Mullett,
Dennis Corcoran,
Henry Kinsley,
Moses W. Hooper,
Matthew R. Moore,
Amos Jones,
James E. Murray,
David N. McCleary,
Stephen E. Day,
John Collier.

Special Policemen.

Thomas J. Casey,
Joseph H. Marvin,
Patrick H. Raymond,
Samuel W. Dudley,
John Fitzgerald,
Charles L. Russell,

Edward F. Belcher,
Roland Litchfield,
Lucius A. Buck,
James F. Jefferds,
Leonard Bacon,
Joseph W. Averill,
William D. Whittemore,
Roland Litchfield, Jr.,
James C. Wilder,
Enoch J. Howlett,
Thomas McIntire, Jr.,
Abner J. Osborn,
James K. Farwell,
Patrick Dunigan,
Luther Hapgood,
D. H. Conners,
Hiram Nevons,
Owen W. Keenan,
James M. Learned,
John F. Murray,
William M. Barrett,
William McDonald,
Moore R. Homer,
George Henderson,
Charles H. Litchfield,
Albert Norris,
John J. McAleer,
George Endres,
Joseph Metzger,
George H. Jewett.

Lorenzo Ritterbush.

Fire Police.

George S. Pike,
Moses Ricker,
James T. Hall,
James M. Hilton,
George H. Howard,
W. T. Bryant.

Truant Officers.

Isaac Bradford,
John L. Boynton,
Abel A. Hildreth,
Benjamin F. Bridden,
Moses M. Child,
Thomas D. Cook,

Amori Benson, Jr.

Constables.

Isaac Bradford,
William Twist,
John L. Boynton,
John C. Burdakin,
Clark Moore,
Charles H. Hunnewell,
John Stimpson,
Charles J. Adams,
James F. Jefferds,
Thomas Work,
Thomas McIntire, Jr.
Frederick A. Lull,
George H. Howard,
Thomas D. Cook,
Charles L. Russell,
Benjamin King,
Henry Kinsley,
Patrick H. Raymond,

Peter Rice.

Superintendent of Burial Ground.

Ward I.

Benjamin F. Wyeth.

Undertakers.

Benjamin F. Wyeth,
Roland Litchfield,
John Pear,
Samuel F. Hunt,
William Casey,
C. Henry Lockhart,
Alvah A. Hadley,
Benjamin J. Hoyt,
Thomas Devens.

Auctioneers.

Samuel R. Knights,
John C. Farnham,
John L. Porter,
William A. Munroe,
Samuel C. Knights,
Jeremiah W. Coveney.

Measurers of Wood and Bark.

James H. Fuller,
John R. Taylor,
Dalphon Osborn,
Francis H. White,
Benjamin J. Hoyt,
J. Henry Wyman,
John F. Brine.

Fence-Viewers.

George B. Lothrop,
Abiel Goss,
Abel Stevens.

Field-Drivers.

Andrew Sproul,
Timothy Ames,
Thomas D. Cook,
James S. Milliken,
Benjamin F. Bridden,
John Coleman,
Amori Benson, Jr.,
George A. Marston,
Abel A. Hildreth.

Pound-Keepers.

George W. Ames, Thomas D. Cook,
George A. Marston.

Fish Officers.

Thomas D. Cook, Joseph W. Averill,
Andrew Sproul.

Hay Weighers.

Otis H. Hendley, Francis H. White,
William C. Brooks, Joseph Burridge,
Daniel Stone, John F. Brine,
B. Franklin Wyeth, Emerson W. Law.

Coal Weighers.

James F. Jefferds, George S. Graves,
Joseph Burridge, J. Henry Wyman,
William H. Raymond, William C. Brooks,
John F. Brine, Emerson W. Law,
Thomas McIntire, Jr., George S. Wright,
William A. Hunnewell, Jones Valentine.

Weigher of Boilers and Heavy Machinery.

Joseph Burridge.

Weighers.

Henry Newman, James H. Reardon.

Sealer of Weights and Measures.

Enoch J. Howlett.

Inspector of Milk.

Enoch J. Howlett.

Surveyors of Mechanics' Work.

William S. Barbour, William A. Mason,
John S. Pollard.

Inspector of Charcoal Baskets.

Enoch J. Howlett.

Measurer of Grain.

Enoch J. Howlett.

WARD OFFICERS.

Ward I.

WARDEN.
James H. Wyeth.

CLERK.
John S. Winkley.

INSPECTORS.
Samuel E. Chamberlain,
Samuel F. Rugg,
James B. F. Thomas.

Ward II.

WARDEN.
Enoch J. Howlett.

CLERK.
Harry B. Winnett.

INSPECTORS.
George C. Howlett,
John M. Davis.
Joseph C. Bruce.

Ward III.

WARDEN.
Luther L. Parker.

CLERK.
Andrew Fogg.

INSPECTORS.
B. J. McCormic,
P. W. Fitzpatrick,
John W. Coveney.

Ward IV.

WARDEN.
Daniel D. Leeds.

CLERK.
Joshua S. Sanborn.

INSPECTORS.
Charles E. Gould,
Allan F. Little,
Albert J. Sawyer.

Ward V.

WARDEN.
Russell S. Edwards.

CLERK.
Francis H. White.

INSPECTORS.
George F. Piper,
Daniel O'Connell, 2d,
George A. B. Merrill.

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